

**ANIMAL SCIENCE
VETERINARY MEDICINE**
JUNIOR & SENIOR INSTRUCTION

Career & Technical Education

Skills for Employment & Lifelong Learning



This document was prepared by:
Office of Career, Technical, and Adult Education
Nevada Department of Education
700 E. Fifth Street
Carson City, NV 89701

Adopted by the State Board of Education /
State Board for Occupational Education on
December 13, 2003

**NEVADA STATE BOARD OF EDUCATION /
STATE BOARD FOR OCCUPATIONAL EDUCATION**

Gary Waters, President
John W. Gwaltney, Vice President
Barbara Myers, Member
Patrick Boylan, Member
Cliff Ferry, Member
Dr. John Hawk, Member
Dr. Merv Iverson, Member
Theresa Malone, Member
Dorothy Nolan, Member
Marcia L. Washington, Member
Ryan Leavitt, Student Representative



ACKNOWLEDGEMENTS

The Agriculture and Natural Resource Science Standards project was drafted and reviewed by Nevada agriculture education instructors. The document was reviewed by the Nevada Agriculture Education Advisory Board that consisted of Secondary Education, Postsecondary Education, Administration, Business and Industry, parents, and students. The Nevada Department of Education and the Agriculture Education Consultant wishes to acknowledge the contributions of those who worked on the development of these standards.

University of Nevada, Las Vegas Center for Workforce Development Staff:

Dr. Sterling Saddler, Director
Dr. Cliff McClain, Program Coordinator
Dr. Cecilia Maldonado, Training Specialist
Melissa Scott, Director of Projects and Operations
Eddie Aleman, Recorder
Debbie R. Smith, Recorder

Agriculture Education Instructors:

Writing Team

Shane Sutton, Team Facilitator, Elko High School, Elko
Kristina Moore, Team Member, Douglas High School, Minden
Gary Sundseth, Spring Creek High School, Spring Creek
Jeff Earnest, Team Member, Regional Technical Institute, Reno
Cortney Dahl, Team Member, Churchill County High School, Fallon
Dr. Dennis Olsen, Team Member, CCSN, Las Vegas
Dr. Steve Damonte, Team Member, Comstock Animal Hospital, Reno
Phyllis Henderson, Team Member, TMCC, Reno
Randi Hunewill, Team Member, Smith Valley High School, Smith
Jim Barbee, Agriculture Education Consultant, Nevada Department of Education

Review Team

Kim Bennett, Lund High School, Lund
Jim Cooney, Elko High School, Elko
Courtney Dahl, Churchill County High School, Fallon
Tom George, Albert Lowry High School, Winnemucca
Darryl Grove, Churchill County High School, Fallon
Tedd Heggie, White Pine County High School, Ely
Judy Hellwinkel, Churchill County High School, Fallon
Jared Hyatt, Elko High School, Elko
Randi Hunewill, Smith Valley High School, Smith
Curtis Jordan, Superintendent, Esmeralda County
Bill Laird, Pershing County High School, Lovelock
Kristina Moore, Douglas High School, Minden
Gary Sundseth, Great Basin Community College, Elko
Shane Sutton, Elko County High School, Elko
Gary Wood, Pahrangat Valley High School, Alamo

State Agriculture Advisory Board

Trustees

Kenny Guinn, Governor, State of Nevada
John Ensign, Senator, United States of America
Jim Gibbons, Representative, United States of America
Lawrence Jacobsen, former Senator, Nevada State Senate, Minden
Dean Rhoads, Senator, Nevada State Senate, Tuscarora
Mark E. Amodei, Senator, Nevada State Senate, Carson City
John Carpenter, Assemblyman, Nevada State Assembly, Elko
Tom Collins, Assemblyman, Nevada State Assembly, North Las Vegas
Marcia de Braga, former Assemblywoman, Nevada State Assembly, Fallon
Mike McGinness, Senator, Nevada State Senate, Fallon
Don Bently, Bently's AgrowDynamics, Minden
Jon Park, Morgan Stanley Dean Witter, Minden

Board

Don Campbell, Stanadyne Automotive Corp., Retired, Carson City
Bob Butler, WolfPack Meat, University Nevada Reno
Tonya Dressler, Rancher, Parent, Minden
Ty Nebe, Vice President, Northern Nevada Bank, Reno
Dr. Jim Brandmuller, Reno
Dr. Vern Luft, College of Education, UNR Reno
Gail Munk, Nevada Ag Foundation, Lovelock
Dr. Keith Rheault, Deputy Superintendent, Nevada Department of Education
Casey Bieroth, State FFA President, Eureka
Gary Sundseth, Nevada Vocational Agriculture Teachers Association
Dennis Hellwinkel, Nevada Farm Bureau President, Fallon
Gary Waters, Nevada State Board for Occupational Education, Las Vegas
Gary Aldax, Sierra Pacific Energy Corporation, Reno
Jim R. Barbee, Agriculture Education Consultant, Dept. of Education
Heather Dye, Executive Director, Nevada FFA Foundation

AGRICULTURE AND NATURAL RESOURCES
Program Requirements

Occupations associated with agriculture production, natural resources, processing and distribution of food and fiber are important to the national interests and provide significant employment opportunities. Occupational education and training in agriculture and agri-business are essential to the continued economic health of Nevada and the nation, as it provides the needed competent and trained work force.

The advent of corporate agriculture and decline of the family-operated agriculture venture mandate the maintenance, expansion and improvement of occupational agriculture education. Through agriculture education, students are prepared for employment in the field of agriculture through planning and managing agriculture, food, fiber, and natural resources systems. Production of agricultural commodities, including food fiber, wood products, horticultural crops, and other plant and animal products. Financing, processing, and marketing and distribution of agriculture products; farm production and supply and service industries; horticulture and landscaping services, and the use and conservation of land and water resources; development and maintenance of recreational resources. It also includes mining and extraction operations and related environmental management services. Source: *USDOE/OVAE Brochure*

Agriculture education provides high school students with technical and specialized knowledge in production agriculture and natural resources as well as other specific agriculture occupations. The programs are designed to meet students' occupational objectives, interests, and abilities for entry into chosen occupations and can prepare them for advanced education and training. Agriculture education is a coordinated program of group and individual instructional activities consisting of classroom instruction, laboratory experiences, and leadership development. Integral to these activities are FFA (leadership development) and Supervised Agriculture Experience (work-based learning), Nevada Revised Statute 385.110. Federal/Public Law #105-225 which was passed in August, 1998, states "Congress of the United States, recognizes the importance of the FFA as an integral part of the program of Vocational Agriculture." All students enrolled in Agriculture Education will be recognized as members of the FFA organization. All secondary agriculture education programs and school districts will purchase a curriculum packet consisting of the New Horizons agriculture career and technical magazine, the FFA manual, and the Nevada Record Book on a yearly basis for every student enrolled in agriculture education in their program. Areas of study at the secondary level are divided into Agriculture Science and Specialized Advanced Agriculture Career and Technical Areas.

Agriculture and Society, Plant and Soil Science, Agriculture Mechanical Engineering and Technology, Animal Science, Leadership/FFA, Agriculture Business, Sales, Marketing and Supervised Agriculture Experience, Natural Resources, and Employability are included in the Agriculture Science introduction division.

Instruction in business/specialized agriculture provides training in specific occupational skills, duties, and tasks, as determined by the business and industry needs. Specialized career and technical agriculture programs will include, but are not limited to, the following: ornamental horticulture, floriculture design, turf and landscape management, equine science and technology, forestry technology, wildlife management and enforcement, food science and processing, feedlot management, animal science, veterinary science, agriculture power systems, natural resources and reclamation, mining science and operations, nursery and greenhouse management, landscape architecture, irrigation and chemical management, lawn care and maintenance, and agriculture construction.

**NEVADA
AGRICULTURE EDUCATION
Model of Instruction**

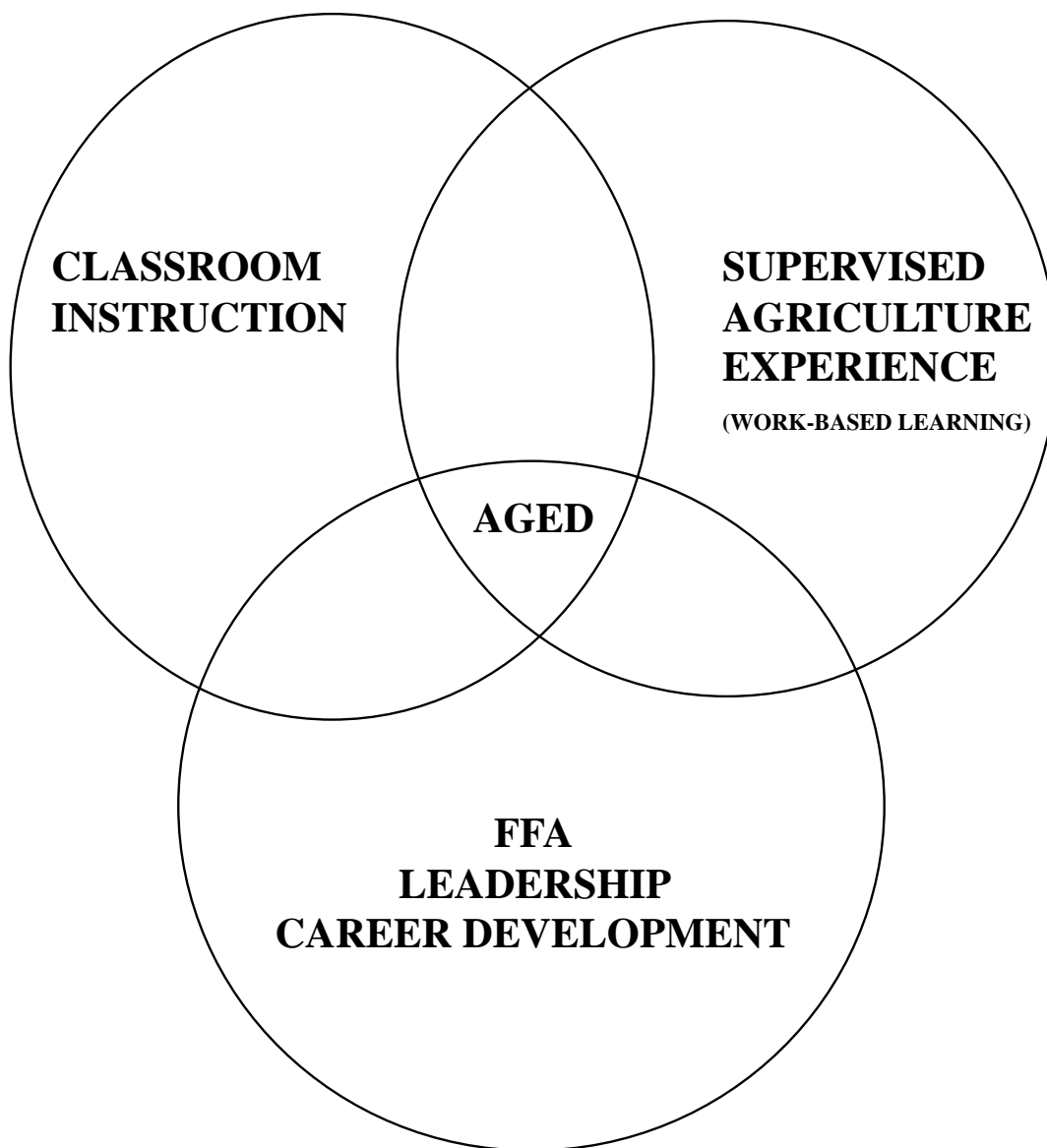


Table of Contents

Introduction to Animal Science	7
Anatomy and Physiology	12
Animal Evaluation and Selection.....	17
Animal Genetics.....	21
Animal Reproduction Management.....	25
Feeds/Nutrition	29
Animal Health.....	33
Facility/Equipment/Handling.....	39
Animal Welfare.....	44
Animals and Society	47
Animals and Environment	51
Non-Traditional and Specialty Animals	54
SAE.....	55
Leadership/FFA	56
Employability Standard	57
Academic Crosswalk.....	67

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 1.0: Introduction to Animal Science: Students will understand the history and importance of domestic animals.

Performance Standard 1.1 Students will be able to define animal science and its components.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Categorize the areas of animal science and their relationships to other sciences. • Explain the interaction of sciences as they relate to the animal industry.
MEETS STANDARD	<p>1.1.1 Compare and contrast animal science to other fields of scientific studies.</p> <p>1.1.2 Compare and contrast animal science to the field of biological science.</p> <p>1.1.3 Compare and contrast animal science to the field of physical science.</p> <p>1.1.4 Identify the roles of animal science as it relates to industry and society.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Define animal science. • Name the sciences associated with the animal industry.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 6.0
 Science: 6.0, 7.0, 8.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0, 23.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 1.0: Introduction to Animal Science: Students will understand the history and importance of domestic animals.

Performance Standard 1.2 Students will be able to describe how, why, and when the domestication of animals occurred.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Construct a timeline of animal domestication in civilization.
MEETS STANDARD	1.2.1 Explore the history of the domestication of animals. 1.2.2 Explain the function of domesticated animals in the development of civilization.
APPROACHES STANDARD	<ul style="list-style-type: none"> • Identify the types of domesticated animals. • Identify the stages of animal domestication.

Nevada Academic Standards Correlation:

English: 5.0, 6.0, 7.0, 9.0, 11.0

Math: 4.0, 5.0, 6.0, 7.0, 8.0, 9.0

Science: 5.0, 7.0, 8.0, 9.0, 12.0, 13.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0, 22.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 1.0: Introduction to Animal Science: Students will understand the history and importance of domestic animals.

Performance Standard 1.3 Students will be able to classify animals using accepted nomenclatures.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Compare and contrast animals based on their anatomical and physiological differences.
MEETS STANDARD	<p>1.3.1 Identify the scientific classifications of common domesticated animals.</p> <p>1.3.2 Classify animal using gender, age, and economic significance.</p> <p>1.3.3 Distinguish the different uses of animal names by regions.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> List the genus, species, and common name of domestic animals.

Nevada Academic Standards Correlation:

English: 1.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0

Math: 6.0, 7.0, 8.0, 9.0

Science: 8.0, 9.0, 12.0, 13.0, 15.0, 17.0, 18.0, 19.0, 20.0, 21.0, 22.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 1.0: Introduction to Animal Science: Students will understand the history and importance of domestic animals.

Performance Standard 1.4 Students will explore global trends and impact of domesticated animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Illustrate domestic animal population worldwide.
MEETS STANDARD	<p>1.4.1 Investigate domesticated animals' role in world population and food supply.</p> <p>1.4.2 Correlate domestic animal uses in various cultures.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the role of domestic animals in society.

Nevada Academic Standards Correlation:

English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0

Math: 6.0, 7.0, 8.0, 9.0

Science: 7.0, 8.0, 9.0, 15.0, 16.0, 17.0, 18.0, 20.0, 22.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 2.0: Anatomy and Physiology: Students will understand the structure and function of the major organ systems of animals.

Performance Standard 2.1 Students will be able to identify the external anatomy of domesticated animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Identify and label the external parts of domesticated production animals using anatomical terminology. • Identify and label the external parts of domesticated companion animals using anatomical terminology. • Identify and label the external parts of domesticated recreational and draft animals using anatomical terminology. • Utilize directional terminology.
MEETS STANDARD	<p>2.1.1 Identify and label the external parts of domesticated production animals using accepted species terminology.</p> <p>2.1.2 Identify and label the external parts of domesticated companion animals using accepted species terminology.</p> <p>2.1.3 Identify and label the external parts of domesticated recreational and draft animals using accepted species terminology.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the common names of the external parts of domesticated production animals. • Recognize the common names of the external parts of domesticated companion animals. • Recognize the common names of the external parts of domesticated recreational and draft animals.

Nevada Academic Standards Correlation:

English: 1.0, 7.0, 9.0, 10.0, 11.0

Math: 6.0

Science: 6.0, 9.0, 19.0, 20.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 2.0: Anatomy and Physiology: Students will understand the structure and function of the major organ systems of animals.

Performance Standard 2.2 Students will be able to identify and describe the anatomy and functions of the musculoskeletal, nervous, and integumentary systems.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Specify individual muscles within groups and their proper function. • Specify individual bones within different skeletal structures using proper anatomic language. • Specify individual parts of the central and peripheral nervous systems structures using proper anatomic language and explain their functions. • Specify different types of skin tissues based on the microanatomy.
MEETS STANDARD	<p>2.2.1 Identify the major muscle groups and their functions.</p> <p>2.2.2 Identify the skeletal structures and functions.</p> <p>2.2.3 Identify the central and peripheral nervous systems structures and their functions.</p> <p>2.2.4 Identify the different types of skin tissues and their functions.</p> <p>2.2.5 Explain the relationship between the musculoskeletal, nervous, and integumentary systems.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List the major components of domestic animal anatomy and physiology.

Nevada Academic Standards Correlation:
 English: 1.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 3.0, 6.0, 9.0
 Science: 6.0, 8.0, 9.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 2.0: Anatomy and Physiology: Students will understand the structure and function of the major organ systems of animals.

Performance Standard 2.3 Students will be able to identify and describe the anatomy and functions of digestive and urinary systems.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Explain the process of digestion, absorption, and excretion in ruminant and nonruminant animals. • Explain the processes that occur in the urinary system.
MEETS STANDARD	<p>2.3.1 Identify, locate, and describe the parts and functions of digestive systems of ruminant and nonruminant animals.</p> <p>2.3.2 Explain the relationship of types of digestive systems to the ability of ruminants and nonruminants to digest and absorb different classes of feed.</p> <p>2.3.3 Identify, locate, and describe the parts and functions of the urinary system.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Classify animals as to digestive system types. • Define ruminant, monogastric, and avian digestive systems. • Recognize the purpose of the urinary system.

Nevada Academic Standards Correlation:
 English: 1.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 3.0, 6.0
 Science: 8.0, 9.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 2.0: Anatomy and Physiology: Students will understand the structure and function of the major organ systems of animals.

Performance Standard 2.4 Students will be able to identify and describe the anatomy and functions of reproductive and endocrine systems.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Compare and contrast the different reproductive anatomies between species. • Relate the endocrine system to physiologic functions.
MEETS STANDARD	<p>2.4.1 Identify, locate, and describe the male and female reproductive organs and their functions based on species.</p> <p>2.4.2 Identify, locate, and describe the endocrine glands and explain their functions.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the basic reproductive parts of animals. • Explain the importance of hormones and where they come from.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 6.0
 Science: 6.0, 8.0, 9.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 2.0: Anatomy and Physiology: Students will understand the structure and function of the major organ systems of animals.

Performance Standard 2.5 Students will be able to identify and describe the anatomy and function of cardiovascular, hemolymphatic and respiratory systems.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Depict the specific parts and functions of the cardiovascular system. • Depict the specific parts and functions of the hemolymphatic system. • Depict the specific parts and functions of the respiratory system. • Explain the different types of circulation and the direction of blood and lymphatic flow.
MEETS STANDARD	<p>2.5.1 Identify, locate, and describe the parts of the cardiovascular system and their functions based on species.</p> <p>2.5.2 Identify, locate, and describe parts of the hemolymphatic system and explain their functions.</p> <p>2.5.3 Identify, locate, and describe parts of the respiratory system and explain their functions.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the importance of the cardiovascular system in animals. • Recognize the importance of the hemolymphatic system in animals. • Recognize the importance of the respiratory system in animals.

Nevada Academic Standards Correlation:

English: 5.0, 6.0, 9.0, 10.0

Math: 6.0, 9.0

Science: 6.0, 8.0, 9.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 3.0: Animal Evaluation and Selection: Students will demonstrate an understanding of the process of evaluation and selection of animals based on current industry standards.

Performance Standard 3.1 Students will be able to recognize and describe the different breeds within the species of domesticated animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Describe the development of modern breeds of production, companion, recreation and draft animals.
MEETS STANDARD	<p>3.1.1 Name and describe the various breeds of production animals giving their origin and breed characteristics.</p> <p>3.1.2 Name and describe the various breeds of recreation and draft animals giving their origin and breed characteristics.</p> <p>3.1.3 Name and describe the various breeds of companion animals giving their origin and breed characteristics.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> List the common breeds of production species. List the common breeds of recreation and draft species. List the common breeds of companion species.

Nevada Academic Standards Correlation:

English: 5.0, 6.0, 7.0, 9.0, 11.0

Math: 3.0, 5.0, 6.0

Science: 8.0, 21.0, 23.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 3.0: Animal Evaluation and Selection: Students will demonstrate an understanding of the process of evaluation and selection of animals based on current industry standards.

Performance Standard 3.2 Students will be able to identify the various types and conformations of domesticated animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Appraise and critique animals based on their phenotypical characteristics relative to breed/species standards.
MEETS STANDARD	<p>3.2.1 Distinguish the phenotypical differences within a breed or species to determine value based on use.</p> <p>3.2.2 Classify animals and their characteristics as desirable or undesirable based on phenotype.</p> <p>3.2.3 Identify current industry standards for animal selection according to species.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> Recognize that selection of animals and their uses are based on standardized phenotypical characteristics. Recognize differences between breeds and species.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 5.0, 6.0, 7.0
 Science: 2.0, 8.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 3.0: Animal Evaluation and Selection: Students will demonstrate an understanding of the process of evaluation and selection of animals based on current industry standards.

Performance Standard 3.3 Students will be able to analyze and interpret the performance data used in selecting domesticated animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Interpret performance data when selecting animals.
MEETS STANDARD	<p>3.3.1 Classify the different methods that exist when using performance data to select animals and animal products.</p> <p>3.3.2 Use proper terminology when describing performance data.</p> <p>3.3.3 Relate pedigree information to performance data.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Discuss types of performance data used in selecting animals. • Read a pedigree chart.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 1.0, 2.0, 3.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 23.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 3.0: Animal Evaluation and Selection: Students will demonstrate an understanding of the process of evaluation and selection of animals based on current industry standards.

Performance Standard 3.4 Students will be able to recognize the importance of physical condition in animal evaluation.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Select animals based on condition scores. • Perform measurements on various species of animals.
MEETS STANDARD	<p>3.4.1 Classify body condition scoring systems among the different species.</p> <p>3.4.2 Explain the various methods of measurement used in evaluating animals.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the importance of appraising the physical condition of an animal.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 3.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 23.0

**Animal Science/Veterinary Medicine
Performance Level Descriptor**

Content Standard 4.0: Animal Genetics: Students will understand the basic theory of inheritance and the genetic basis for animal selection.

Performance Standard 4.1 Students will be able to explain the role genetics play in animal production and performance.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Summarize how genetics can be used to enhance animal production and performance.
MEETS STANDARD	<p>4.1.1 Describe how variations and traits are passed from parents to offspring.</p> <p>4.1.2 Determine the role genetics has on enhancing animal production and performance.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> List the laws of inheritance. Define genetics.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 8.0, 9.0, 16.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 4.0: Animal Genetics: Students will understand the basic theory of inheritance and the genetic basis for animal selection.

Performance Standard 4.2 Students will be able to explain the process of cellular division and how it relates to the transference of genetic information.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Summarize the role of genetic material in the processes of meiosis and mitosis. • Predict a phenotypic outcome based on genetic pairings. • Explain the existence of complex pairings and how they relate to genetic conditions.
MEETS STANDARD	<p>4.2.1 Describe the process of meiosis.</p> <p>4.2.2 Describe the process of mitosis.</p> <p>4.2.3 Identify and describe genetic material components.</p> <p>4.2.4 Classify genetic pairing as either being dominant or recessive.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Identify the difference between meiosis and mitosis. • Review basic cellular structures and functions. • Indicate why genes are important in breeding animals. • Define dominant and recessive genes.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 2.0, 6.0, 7.0, 8.0, 9.0
 Science: 8.0, 9.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 4.0: Animal Genetics: Students will understand the basic theory of inheritance and the genetic basis for animal selection.

Performance Standard 4.3 Students will be able to explain linkage, crossover and mutation as they relate to the transmission of characteristics.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Predict potential genetic outcomes based on linkage, crossover, and mutations given specific information.
MEETS STANDARD	<p>4.3.1 Diagram how sex is determined in various species of animals.</p> <p>4.3.2 Examine common mutations found in domesticated animals.</p> <p>4.3.3 Explain how linkage and crossover affect genetic outcomes.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> Define linkage, crossover, and mutation.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 8.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 4.0: Animal Genetics: Students will understand the basic theory of inheritance and the genetic basis for animal selection.

Performance Standard 4.4 Students will be able to discuss genetic engineering and its effects on animal production and performance.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Justify the application of genetic engineering methods to improve production and performance. Summarize potential implications involved with genetic engineering and its effect on society.
MEETS STANDARD	<p>4.4.1 Differentiate between various methods used in genetic engineering.</p> <p>4.4.2 Summarize modern developments in genetic engineering for the improvement of animal production and performance.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> Identify and describe several systems of genetic engineering.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 1.0, 2.0, 3.0, 6.0, 7.0, 8.0, 9.0
 Science: 8.0, 18.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 5.0: Animal Reproduction Management: Students will understand the structure and function of the endocrine and reproductive systems and how they relate to reproductive management practices and fetal development.

Performance Standard 5.1 Student will be able to describe the factors that affect fertility and the process of fertilization.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Explain processes that can be used to manipulate the estrus cycle and fertility. • Correlate various animal conditions to reproductive efficiency.
MEETS STANDARD	<p>5.1.1 Explain the processes of fertilization.</p> <p>5.1.2 Explain components of the estrus cycle for various breeds and species.</p> <p>5.1.3 Explore the causes of reproductive failures.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Outline the process of fertilization. • List types of reproductive failures.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 6.0
 Science: 8.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 5.0: Animal Reproduction Management: Students will understand the structure and function of the endocrine and reproductive systems and how they relate to reproductive management practices and fetal development.

Performance Standard 5.2 Student will be able to describe the stages of fetal development and gestation.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Explore methods of predicting and examining stages of fetal development. • Compare embryological development between the various stages of fetal development.
MEETS STANDARD	<p>5.2.1 Outline the various gestation periods of different breeds and species of animals.</p> <p>5.2.2 Illustrate the various stages of fetal development.</p> <p>5.2.3 Explain the causes and prevention of abnormal fetal development.</p> <p>5.2.4 Investigate the physiology associated with the maternal functions during gestation.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Generalize the steps of the gestation process. • Explore the steps of fetal development.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 9.0, 10.0, 11.0
 Math: 1.0, 2.0, 5.0, 6.0, 8.0
 Science: 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 5.0: Animal Reproduction Management: Students will understand the structure and function of the endocrine and reproductive systems and how they relate to reproductive management practices and fetal development.

Performance Standard 5.3 Student will be able to describe the process of parturition and lactation.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Prescribe remedies for dystocia. • Explain methods used to increase milk production. • Compare and contrast differences of species' milk composition. • Explain the correlation of animal health management as related to lactation quality.
MEETS STANDARD	5.3.1 Discuss the stages of parturition. 5.3.2 Identify and describe the factors contributing to dystocia. 5.3.3 Describe the process of lactation. 5.3.4 Identify the major components of the mammary gland. 5.3.5 Identify and describe a typical lactation curve. 5.3.6 Discuss factors that affect milk production.
APPROACHES STANDARD	<ul style="list-style-type: none"> • List types of mammary systems. • List the stages of parturition. • Define dystocia.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 3.0, 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 5.0: Animal Reproduction Management: Students will understand the structure and function of the endocrine and reproductive systems and how they relate to reproductive management practices and fetal development.

Performance Standard 5.4 Student will be able to describe the common breeding systems used in animal reproduction.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Calculate the percent of parental stock in offspring using various breeding systems. • Explore the various methods of assisted reproduction.
MEETS STANDARD	<p>5.4.1 Explain the effects, advantages, and disadvantages of various breeding systems.</p> <p>5.4.2 Identify the factors involved in selecting a breeding system.</p> <p>5.4.3 Define heritability.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List the common breeding systems used in livestock production.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 5.0, 6.0
 Science: 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 6.0: Feeds/Nutrition: Students will understand the nutritional requirements and feeding practices of animals.

Performance Standard 6.1 Students will be able to differentiate the types of gastrointestinal tracts and their dietary requirements.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Explain the physiology of digestion and absorption in ruminant and nonruminant animals.
MEETS STANDARD	<p>6.1.1 Describe the components of various gastrointestinal tracts.</p> <p>6.1.2 Describe the different nutrient and feed requirements between species.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Identify parts of gastrointestinal tract. • List the various types of feeds. • List the nutrients required by animals.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 2.0, 6.0
 Science: 2.0, 3.0, 6.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 6.0: Feeds/Nutrition: Students will understand the nutritional requirements and feeding practices of animals.

Performance Standard 6.2 Students will be able to identify the nutrients and the nutritional requirements for animal production and performance.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Differentiate the various nutrient types (i.e., vitamins, minerals, carbohydrates, and proteins) and their components.
MEETS STANDARD	<p>6.2.1 Classify the nutrients.</p> <p>6.2.2 Discuss the major factors that affect an animal’s need for nutrients.</p> <p>6.2.3 Illustrate the difference between dietary essential and nonessential nutrients.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> List the essential nutrients for animal health.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 3.0, 5.0, 6.0
 Science: 2.0, 3.0, 6.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 6.0: Feeds/Nutrition: Students will understand the nutritional requirements and feeding practices of animals.

Performance Standard 6.3 Students will be able to identify and classify the common feeds used for animal production and performance including methods of preparation and processing.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Read and interpret a feed analysis report. • Develop a complete feeding program for a prescribed group of animals. • Formulate a balanced feed ration using net energy system. • Prescribe methods of preventing damage to feed quality. • Assess the geographic influences on feed availability.
MEETS STANDARD	<p>6.3.1 Formulate a balanced feed ration.</p> <p>6.3.2 Describe various methods of feed analysis.</p> <p>6.3.3 Describe the functions of an appropriate ration.</p> <p>6.3.4 Read and interpret information from a feed tag.</p> <p>6.3.5 Distinguish between the different types of feedstuffs used in ration formulation.</p> <p>6.3.6 Distinguish between the different types of feed preparation and processing.</p> <p>6.3.7 Examine feed for differences in quality.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List the types of feeds commonly fed to animals. • List the information provided on a feed tag. • Identify resources for animal nutrient requirements.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 1.0, 2.0, 3.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 2.0, 3.0, 4.0, 6.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 6.0: Feeds/Nutrition: Students will understand the nutritional requirements and feeding practices of animals.

Performance Standard 6.4 Students will be able to explain the role feed additives have in animal nutrition.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Calculate appropriate levels of feed additives for feed rations. • Calculate economic advantages of using feed additives and hormone implants.
MEETS STANDARD	<p>6.4.1 Discuss the general use and purpose of feed additives and hormone implants.</p> <p>6.4.2 Discuss the proper use of feed additives for various species.</p> <p>6.4.3 Describe the proper method of hormone implantation.</p> <p>6.4.4 Discuss labeling and regulation of feed additives.</p> <p>6.4.5 Discuss the proper mixing of feed additives in rations.</p> <p>6.4.6 Discuss health issues and concerns relating to feed additives.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List common types of feed additives. • List common types of hormone implants. • Explain reasons for using feed additives and hormone implants.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 3.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 2.0, 3.0, 6.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 7.0: Animal Health: Students will understand the prevention and etiology of animal diseases with a regional emphasis.

Performance Standard 7.1 Students will be able to recognize common infectious diseases in domestic animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Prescribe a health management plan for a specific species incorporating the pathophysiology, prevention, and treatment of infectious diseases of domestic animals. • Summarize the impact of zoonotic disease in local, state, national, and global settings.
MEETS STANDARD	<p>7.1.1 Describe the etiology, clinical signs, treatment, prevention, pathology, and contagious nature of common bacterial diseases.</p> <p>7.1.2 Describe the etiology, clinical signs, treatment, prevention, pathology, and contagious nature of common viral diseases.</p> <p>7.1.3 Describe the etiology, clinical signs, treatment, prevention, pathology, and contagious nature of common parasitic diseases.</p> <p>7.1.4 Describe the etiology, clinical signs, treatment, prevention, pathology, and contagious nature of common mycotic diseases.</p> <p>7.1.5 Ascertain potential zoonotic diseases.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List common infectious diseases of domestic animals. • List common parasites of domestic animals. • Define zoonosis.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: 6.0, 7.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 7.0: Animal Health: Students will understand the prevention and etiology of animal diseases with a regional emphasis.

Performance Standard 7.2 Students will be able to recognize nutritional diseases in domestic animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Prescribe a health management plan for a specific species incorporating the pathophysiology, prevention, and treatment of nutritional diseases of domestic animals.
MEETS STANDARD	<p>7.2.1 Describe the etiology, clinical signs, treatment, prevention, and pathology of nutritional deficit diseases.</p> <p>7.2.2 Describe the etiology, clinical signs, treatment, prevention, and pathology of nutritional excess diseases.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List common nutritional diseases in domestic animals.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: 6.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 7.0: Animal Health: Students will understand the prevention and etiology of animal diseases with a regional emphasis.

Performance Standard 7.3 Students will be able to recognize common genetic and congenital diseases in domestic animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Prescribe a health management plan for a specific species incorporating the pathophysiology, prevention, and treatment of genetic and congenital diseases of domestic animals.
MEETS STANDARD	<p>7.3.1 Describe the etiology, clinical signs, treatment, prevention, and pathology of genetic diseases.</p> <p>7.3.2 Differentiate between genetic and congenital diseases.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List common genetic disorders of domestic animals. • Define genetic and congenital diseases.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 6.0
 Science: 6.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 7.0: Animal Health: Students will understand the prevention and etiology of animal diseases with a regional emphasis.

Performance Standard 7.4 Students will be able to recognize the environmental diseases associated with domestic animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Prescribe a health management plan for a specific species incorporating the pathophysiology, prevention, and treatment of environmental diseases of domestic animals.
MEETS STANDARD	7.4.1 Describe the etiology, clinical signs, treatment, prevention, and pathology of environmental diseases.
APPROACHES STANDARD	<ul style="list-style-type: none"> • List the common environmental diseases.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: 6.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 7.0: Animal Health: Students will understand the prevention and etiology of animal diseases with a regional emphasis.

Performance Standard 7.5 Students will be able to recognize common developmental diseases in domestic animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Prescribe a health management plan for a specific species incorporating the pathophysiology, prevention, and treatment of developmental diseases of domestic animals.
MEETS STANDARD	7.5.1 Describe the etiology, clinical signs, treatment, prevention, and pathology of developmental diseases.
APPROACHES STANDARD	<ul style="list-style-type: none"> • List common developmental diseases of domestic animals.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: 6.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 7.0: Animal Health: Students will understand the prevention and etiology of animal diseases with a regional emphasis.

Performance Standard 7.6 Students will be able to recognize common traumatic injuries in domestic animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Prescribe a health management plan for a specific species incorporating the pathophysiology, prevention, and treatment of traumatic injuries of domestic animals.
MEETS STANDARD	7.6.1 Describe the etiology, clinical signs, treatment, prevention, and pathology of traumatic injuries in domestic animals.
APPROACHES STANDARD	<ul style="list-style-type: none"> • List common traumatic injuries of domestic animals.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: 6.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 8.0: Facility/Equipment/Handling: Students will recognize accepted industry standards for use and selection of animal facilities, housing, restraint equipment, and tools.

Performance Standard 8.1 Students will be able to classify and discuss the different types of housing and penning systems used for domesticated animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Blueprint and estimate costs of appropriate housing and penning systems for a specific species. • Recommend a sanitation program for a specific species of domesticated animals.
MEETS STANDARD	<p>8.1.1 Calculate appropriate dimensions for penning and housing facilities for domesticated animals.</p> <p>8.1.2 Recognize optimal location for housing and penning systems in the available environment.</p> <p>8.1.3 Examine the cost factors associated with housing and penning systems for domesticated animals.</p> <p>8.1.4 Compare and contrast various types of housing and penning systems between species.</p> <p>8.1.5 Discuss the importance of sanitation as related to animal health.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List different types of housing and penning systems used in animal care. • Recognize the importance of sanitation in animal housing.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 1.0, 2.0, 3.0, 5.0, 13.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 8.0: Facility/Equipment/Handling: Students will recognize accepted industry standards for use and selection of animal facilities, housing, restraint equipment, and tools.

Performance Standard 8.2 Students will be able to identify and describe appropriate methods of restraint and handling of domesticated animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Validate proper use of basic tools for restraint and handling of domesticated animals. • Integrate safe methods of handling and restraint when working with domesticated animals.
MEETS STANDARD	<p>8.2.1 Identify and demonstrate the use of basic tools for restraint and handling of domesticated animals.</p> <p>8.2.2 Differentiate between methods of restraint and handling for various species.</p> <p>8.2.3 Identify safety hazards for handlers and animals regarding restraint and handling of domesticated animals.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List tools used in restraining and handling domesticated animals. • Recognize the importance of safety when restraining and handling domesticated animals.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 6.0
 Science: 1.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 8.0: Facility/Equipment/Handling: Students will recognize accepted industry standards for use and selection of animal facilities, housing, restraint equipment, and tools.

Performance Standard 8.3 Students will be able to recognize the behaviors common to domesticated animals associated with confinement and handling.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Relate abnormal animal behaviors to confinement and handling.
MEETS STANDARD	8.3.1 List and describe the types of behavior exhibited by domesticated animals as they relate to confinement and handling.
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize that domesticated animals exhibit different types of behavior subsequent to confinement and handling.

Nevada Academic Standards Correlation:

English: 5.0, 6.0, 7.0, 9.0, 11.0

Math: 6.0

Science: 7.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 8.0: Facility/Equipment/Handling: Students will recognize accepted industry standards for use and selection of animal facilities, housing, restraint equipment, and tools.

Performance Standard 8.4 Students will be able to describe appropriate and safe methods of animal transportation.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Summarize specific regional laws regarding animal transportation. • Outline an appropriate transportation plan for a specific species.
MEETS STANDARD	<p>8.4.1. Explore various safe and accepted methods of animal transportation.</p> <p>8.4.2. Identify differences in transporting species of domesticated animals.</p> <p>8.4.3. Identify common laws governing the transportation of domesticated animals.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize that there are laws governing the transportation of domesticated animals. • List types of animal transportation.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 3.0, 5.0, 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 8.0: Facility/Equipment/Handling: Students will recognize accepted industry standards for use and selection of animal facilities, housing, restraint equipment, and tools.

Performance Standard 8.5 Students will be able to recognize the type of equipment used in animal management.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Integrate knowledge and demonstrate the proper use of equipment relating to animal management.
MEETS STANDARD	8.5.1 List and describe equipment used in animal identification. 8.5.2 List and describe equipment used in animal health management. 8.5.3 List and describe equipment used in animal reproductive management. 8.5.4 List and describe equipment used in animal feeding. 8.5.5 List and describe equipment used in animal training and grooming.
APPROACHES STANDARD	<ul style="list-style-type: none"> Recognize the varied equipment used in animal management.

Nevada Academic Standards Correlation:
 English: 1.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 3.0, 6.0, 7.0, 8.0
 Science: 1.0, 2.0, 3.0, 6.0, 23.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 9.0: Animal Welfare: Students will develop an understanding of animal issues and uses in today’s society.

Performance Standard 9.1 Students will be able to discuss the philosophies surrounding animal welfare.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Develop and defend a position regarding animal welfare issues.
MEETS STANDARD	9.1.1 Compare and contrast animal welfare versus the concept of animal rights. 9.1.2 Breadboard the basis for general concerns regarding animal welfare.
APPROACHES STANDARD	<ul style="list-style-type: none"> • Define animal welfare. • Define the concept of animal rights.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 5.0, 6.0, 8.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 9.0: Animal Welfare: Students will develop an understanding of animal issues and uses in today’s society.

Performance Standard 9.2 Students will be able to discuss historical events, changing attitudes, and legislation regarding animal use.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Relate the effects of historical events and legislation that have influenced attitudes regarding animal use.
MEETS STANDARD	<p>9.2.1 Explore the historical events that contribute to the evolution of attitudes regarding animal use.</p> <p>9.2.2 Examine legislation regarding current animal usage.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the significance of historical events and legislation toward animal usage.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 9.0: Animal Welfare: Students will develop an understanding of animal issues and uses in today’s society.

Performance Standard 9.3	Students will be able to discuss controversial practices and cultural differences in animal use.
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Validate an opinion regarding animal use based on reliable sources. • Outline different animal uses as related to specific cultures.
MEETS STANDARD	<p>9.3.1 Compare and contrast current controversial issues in animal usage.</p> <p>9.3.2 Distinguish between fact and propaganda when analyzing animal usage issues.</p> <p>9.3.3 Compare and contrast cultural differences and their impact on animal use.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize that differences of opinions exist regarding animal use, and their impact on society. • Recognize differences in cultural perceptions regarding animal use.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 6.0, 8.0
 Science: 20.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 10.0: Animals and Society: Students will develop an awareness of the relationship and interaction of animals in society.

Performance Standard 10.1 Students will be able to describe how domesticated animals are used as sources of food and fiber.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Distinguish the differences in products derived from different species.
MEETS STANDARD	<p>10.1.1 List and describe the various products derived from various species of production animals.</p> <p>10.1.2 List and describe the process of harvesting food and fiber from production animals.</p> <p>10.1.3 Discuss the economic importance of products derived from production animals.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> Recognize how animals are used by humans as a source of food and fiber.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 2.0, 3.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 10.0: Animals and Society: Students will develop an awareness of the relationship and interaction of animals in society.

Performance Standard 10.2 Students will be able to discuss food safety as it relates to animal products and by-products.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Outline quality assurance programs for the production animal industry.
MEETS STANDARD	<p>10.2.1 Describe the complexities of the food safety issues facing the foods industries.</p> <p>10.2.2 Describe the magnitude of the issues relating to food safety.</p> <p>10.2.3 Identify the most important of the food-borne pathogens.</p> <p>10.2.4 Identify and describe various methods of processing animal product.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the importance of food safety to society. • Discuss methods of processing animal product.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 9.0, 11.0
 Math: 1.0, 5.0, 6.0, 7.0
 Science: 2.0, 3.0, 20.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 10.0: Animals and Society: Students will develop an awareness of the relationship and interaction of animals in society.

Performance Standard 10.3 Students will be able to discuss current government regulations concerning animal use.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> Outline specific government agencies and their roles in animal use.
MEETS STANDARD	10.3.1 Differentiate between the roles of various agencies in providing for a safe food supply. 10.3.2 Differentiate between the roles of various agencies regulating animal use. 10.3.3 Explore current government regulations regarding animal use.
APPROACHES STANDARD	<ul style="list-style-type: none"> Recognize the importance of government involvement in food safety. Recognize the importance of government agencies in regulating animal use.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 5.0, 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 10.0: Animals and Society: Students will develop an awareness of the relationship and interaction of animals in society.

Performance Standard 10.4 Students will be able to recognize the existence and importance of the human-animal bond.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Create potential methods for enhancing human-animal interactions.
MEETS STANDARD	<p>10.4.1 Identify the physical, psychological, therapeutic, and service roles that animals have in society.</p> <p>10.4.2 Identify the human emotions associated with animal ownership.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Define the human-animal bond. • Recognize that human-animal associations have many beneficial effects on humans. • Explain how human social interrelationships can be influenced by appropriate contact with animals.

Nevada Academic Standards Correlation:
 English: 1.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0, 7.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 11.0: Animals and Environment: Students will understand the roles and impacts animals have within the ecosystem.

Performance Standard 11.1 Students will be able to describe sustainable agriculture practices associated with animal production.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Summarize various phases of animal production and uses as it relates to the environment. • Relate areas of concern for making livestock systems more sustainable.
MEETS STANDARD	<p>11.1.1 Compare and contrast the different methods of agriculture sustainability.</p> <p>11.1.2 Describe animal production benefits and problems relating to the environment.</p> <p>11.1.3 Explain owner liability under animal production and ownership.</p> <p>11.1.4 Describe the federal and state laws that affect animal production as it relates to environmental issues (i.e., air, water, and soil quality).</p> <p>11.1.5 Describe methods of handling animal wastes that reduce environmental pollution and are within the guidelines of current laws and regulations.</p> <p>11.1.6 Describe the proper way to dispose of dead animals.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize that animals have an impact on the environment.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 5.0, 6.0, 7.0, 8.0
 Science: 2.0, 3.0, 13.0, 16.0, 17.0, 20.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 11.0: Animals and Environment: Students will understand the roles and impacts animals have within the ecosystem.

Performance Standard 11.2 Students will be able to discuss various aspects of range management practices and their relationship to the land.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Develop a sustainable rangeland management plan for a specific livestock species.
MEETS STANDARD	<p>11.2.1 Identify appropriate sustainable range management practices.</p> <p>11.2.2 Compare and contrast the various animal species' impact on rangelands.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the impact that livestock production has on rangelands. • Define rangelands as a renewable resource.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, 11.0
 Math: 1.0, 2.0, 3.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 10.0, 11.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 11.0: Animals and Environment: Students will understand the roles and impacts animals have within the ecosystem.

Performance Standard 11.3 Students will be able to discuss various aspects of domesticated animal management and their relationship to wildlife management.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Interface management practices for wildlife and domesticated animals.
MEETS STANDARD	11.3.1 Correlate the relationship between wild animals and domesticated animals in an ecosystem.
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the relationship between wildlife and domesticated animals in an ecosystem.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0, 7.0, 8.0
 Science: 20.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 12.0: Non-Traditional and Specialty Animals: Students will understand the significance of non-traditional and specialty animals.

Performance Standard 12.1 Students will develop an understanding of husbandry practices of non-traditional and specialty animals.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Summarize specific uses of non-traditional and specialty animals in society.
MEETS STANDARD	<p>12.1.1 List and describe species of non-traditional and specialty animals.</p> <p>12.1.2 Discuss the management, feeding practices, health maintenance, facilities and equipment, and marketing of non-traditional and specialty animals (i.e., zoo, entertainment, ornamental, and aquatic animals).</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Define non-traditional and specialty animals. • Recognize the importance of non-traditional and specialty animals in society.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 13.0: SAE: Students will explain the relationship between a Supervised Agriculture Experience (SAE) and their preparation for a career in Agriculture.

Performance Standard 13.1 Students will actively engage in and manage an SAE, which enables them to develop work-based skills.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Qualify for the Silver State FFA Degree. • Develop a career plan for accomplishing occupational objectives.
MEETS STANDARD	<p>13.1.1 Identify and describe a career interest in agriculture industry or related occupation.</p> <p>13.1.2 Actively participate in and manage an individual SAE.</p> <p>13.1.3 Keep accurate records as prescribed by the Nevada State FFA policies and procedures.</p> <p>13.1.4 Show progress with individual achievement and growth in an SAE.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Define SAE. • Plan an individual SAE. • Differentiate between the types of SAE.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 1.0, 2.0, 3.0, 5.0, 6.0, 7.0, 8.0, 9.0
 Science: 19.0, 23.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 14.0: Leadership/FFA: Students will recognize the importance of leadership skills including interpersonal relations, group management, and communication.

Performance Standard 14.1 Students will recognize the traits of effective leaders and participate in leadership training through involved participation in the FFA.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Apply for an office. • Perform a speech for six to eight minutes on an animal-industry related topic. • Serve on or chair a standing committee. • Demonstrate ten procedures of Parliamentary Law. • Participate in a Career Development Event above the local level.
MEETS STANDARD	<p>14.1.1 Recognize opportunities in high wage, high skill animal industry careers.</p> <p>14.1.2 Demonstrate appropriate attitudes and behaviors for effective leadership.</p> <p>14.1.3 Describe the types of individuals who emerge as a group's leader.</p> <p>14.1.4 Explain the importance of verbal and nonverbal communication skills in leadership.</p> <p>14.1.5 Select qualities of an effective leader.</p> <p>14.1.6 Describe technical leadership qualities and skills.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Identify opportunities in high wage, high skill animal-industry careers. • Identify technical leadership qualities and skills. • Explain the qualities of a good leader. • Differentiate between verbal and nonverbal communication skills in leadership.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0, 7.0, 8.0, 9.0
 Science: 18.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.1 Students shall demonstrate problem-solving skills.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Solve three problems using the seven steps of problem solving. • Incorporate problem-solving skills through a Career Development Event in FFA.
MEETS STANDARD	15.1.1 List and describe the seven steps to problem solving. 15.1.2 Identify leadership styles used in problem solving. 15.1.3 Demonstrate brainstorming techniques. 15.1.4 Examine and explain the advantages and disadvantages of alternative solutions to one or more problems. 15.1.5 Create an action plan based upon a solution to a work-related problem. 15.1.6 Identify the benefits of solving a work-related problem.
APPROACHES STANDARD	<ul style="list-style-type: none"> • Explain the importance of problem solving.

Nevada Academic Standards Correlation:
 English: 1.0, 2.0, 4.0, 5.0, 6.0, 7.0, 9.0
 Math: 6.0, 7.0
 Science: 18.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.2 Students shall demonstrate critical-thinking skills.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Demonstrate critical-thinking skills in a Career Development Event. • Demonstrate the skills necessary to identify, analyze, and offer solutions for animal industry issues. • Formulate, implement, and evaluate an action plan.
MEETS STANDARD	<p>15.2.1 Demonstrate critical-thinking skills through the planning and implementation of their SAE program.</p> <p>15.2.2 List and describe the skills necessary to identify, analyze, and offer solutions for animal industry issues.</p> <p>15.2.3 Use critical-thinking processes to support solving problems and making decisions.</p> <p>15.2.4 Demonstrate critical-thinking skills necessary in the workplace.</p> <p>15.2.5 Explain how emotional thinking and logical thinking affect decision making in the workplace.</p> <p>15.2.6 Explain the difference between reliable and unreliable observations and statements of facts.</p> <p>15.2.7 Recognize patterns or relationships through observation and discovery.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Identify the importance of critical-thinking skills in identifying, analyzing, and offering solutions for animal industry issues.

Nevada Academic Standards Correlation
 English: 1.0, 2.0, 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 5.0, 6.0, 7.0
 Science: 18.0, 19.0, 21.0, 22.0, 24.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.3 Students shall demonstrate the ability to speak, write, and listen effectively.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Identify ways to adapt their communication style to that of others. • Describe and use techniques to improve listening, reading, writing, speaking, and nonverbal communication skills. • Explain assertive communication.
MEETS STANDARD	<p>15.3.1 Recognize and overcome communication barriers.</p> <p>15.3.2 Describe characteristics of four communication styles.</p> <p>15.3.3 Discuss the importance of self-communication and interpersonal communication.</p> <p>15.3.4 Identify, research, prepare, and present an animal-industry-related speech.</p> <p>15.3.5 Explain the benefits of effective communication skills in the workplace.</p> <p>15.3.6 Effectively interpret and respond to verbal and nonverbal messages.</p> <p>15.3.7 Demonstrate proper telephone etiquette.</p> <p>15.3.8 Effectively communicate thoughts, ideas, and information in writing.</p> <p>15.3.9 Organize ideas and communicate orally; is able to effectively demonstrate job skills to others.</p> <p>15.3.10 Locate, understand, and interpret written information in documents such as manuals, graphs, and schedules.</p> <p>15.3.11 Select and utilize an appropriate medium for conveying messages with dignity and respect.</p> <p>15.3.12 Organize information into the appropriate format in accordance with standard practices, which includes prewriting, drafting, proofreading, editing/revising, and preparing a final copy.</p> <p>15.3.13 Demonstrate sensitivity to cultural diversity in communication.</p> <p>15.3.14 Identify common communication barriers and methods for improving communication.</p>

<p style="text-align: center;">APPROACHES STANDARD</p>	<ul style="list-style-type: none"> • Define communications. • Explain the relationship between communication and leadership. • Explain the purpose of communication. • Explain the communication process.
-------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Nevada Academic Standards Correlation:
English: 1.0, 2.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 11.0
Math: 1.0, 5.0, 6.0
Science: 20.0, 22.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.4 Students shall demonstrate the ability to select, apply, and maintain appropriate technology.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Complete a computer-based application for an FFA awards program. • Complete a computer-based record book program. • Conduct agriculture research using print, multimedia, and Internet resources and use graphs, charts, and/or diagrams to describe trends related to the topic.
MEETS STANDARD	<p>15.4.1 Operate a database program as it relates to the animal industry.</p> <p>15.4.2 Operate a spreadsheet application related to the animal industry.</p> <p>15.4.3 Operate a word-processing program.</p> <p>15.4.4 Construct a multimedia presentation.</p> <p>15.4.5 Access and demonstrate use of the Internet by accessing and exploring the Nevada State Agriculture Web site and related animal industry sites.</p> <p>15.4.6 Demonstrate ability to utilize basic keyboarding techniques.</p> <p>15.4.7 Demonstrate ability to utilize other input devices.</p> <p>15.4.8 Demonstrate ability to utilize various electronic research methods.</p> <p>15.4.9 Demonstrate knowledge of the basic technology systems currently available and how they apply to your field.</p> <p>15.4.10 Investigate and explain the use, benefits, and costs of technological developments in the workplace and school.</p> <p>15.4.11 Identify and demonstrate the appropriate use of technology to enhance the efficiency of the workplace and school.</p> <p>15.4.12 Demonstrate routine maintenance and repair of technological equipment.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Recognize the importance of information technology in agriculture. • List and describe the types of applications used in information technology.

Nevada Academic Standards Correlation:

English: 4.0, 6.0, 7.0, 9.0, 11.0

Math: 1.0, 2.0, 3.0, 5.0, 6.0

Science: 22.0, 23.0

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.5 Students shall demonstrate leadership and teamwork skills.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Demonstrate ten procedures of parliamentary law. • Lead a group discussion. • Analyze five stages of group development.
MEETS STANDARD	<p>15.5.1 Participate in a group panel discussion.</p> <p>15.5.2 Participate in one of the seven FFA leadership development conferences.</p> <p>15.5.3 Demonstrate five procedures of parliamentary law.</p> <p>15.5.4 Participate in planning and conducting at least three official functions in the FFA Chapter Program of Activities.</p> <p>15.5.5 Explain the importance of democratic group leadership.</p> <p>15.5.6 Describe the characteristics of functional, task, and informal groups.</p> <p>15.5.7 Work cooperatively with others when given group project.</p> <p>15.5.8 Explain traits necessary to effectively lead and influence individuals and groups.</p> <p>15.5.9 Demonstrate appropriate attitudes and behaviors for effective leadership.</p> <p>15.5.10 Demonstrate respect for team members, team processes, and team goals.</p> <p>15.5.11 Participate in the implementation of a group's decision and evaluate the results.</p> <p>15.5.12 Demonstrate the qualities of an effective leader and team member.</p> <p>15.5.13 Describe the importance of a proper dress code.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Explain the importance of groups. • Explain how to organize groups. • Participate in FFA activities at the local level.

Nevada Academic Standards Correlation:
 English: 4.0, 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.6 Students shall demonstrate sound workplace ethics.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Model the eleven points of FFA Code of Ethics while participating in school, community, or FFA activities.
MEETS STANDARD	<p>15.6.1 Identify and understand the eleven points to the FFA Code of Ethics.</p> <p>15.6.2 Develop personal work ethics through participation in their SAE.</p> <p>15.6.3 Discuss the importance of ethics practiced in the workplace.</p> <p>15.6.4 Develop personal work ethics through work experience.</p> <p>15.6.5 Describe the importance of ethics practiced in the workplace.</p> <p>15.6.6 Demonstrate regular attendance, promptness, and the willingness to follow instructions and complete an assigned task.</p> <p>15.6.7 Demonstrate appropriate personal and professional attitudes and behaviors.</p> <p>15.6.8 Maintain a safe, clean, and organized work area.</p> <p>15.6.9 Demonstrate awareness of legal responsibilities related to individual performance, safety, and customer satisfaction.</p> <p>15.6.10 Demonstrate knowledge of various types of harassment.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • List the important ethics in the workplace.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.7 Students shall demonstrate the ability to effectively manage resources in high-performance workplaces.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Discuss the factors that affect the development of resources in high-performance workplaces. • Hold an office or position in the FFA program.
MEETS STANDARD	<p>15.7.1 Identify the important resources needed in a workplace.</p> <p>15.7.2 Develop skills in evaluating themselves and others in a workplace environment.</p> <p>15.7.3 Discuss the importance of managing resources in high-performance workplaces.</p> <p>15.7.4 Identify and organize the human resources needed to complete a job assignment.</p> <p>15.7.5 Identify and organize the material resources and space requirements needed to complete a job assignment.</p> <p>15.7.6 Effectively use the highest available technology to complete a job assignment.</p> <p>15.7.7 Demonstrate cooperation and leadership in a team at school or in a workplace setting.</p> <p>15.7.8 Use the basic components of effective time management.</p> <p>15.7.9 Recognize the need for management skills in the workplace with regard to stress, anger management, and substance abuse.</p> <p>15.7.10 Estimate costs and prepare a detailed work order for an animal supply service, veterinary office, or any other related business.</p> <p>15.7.11 Develop a time schedule and prioritized task list to complete a job assignment.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Define “high-performance workplace.” • Discuss the ingredients and resources included in managing resources in high-performance workplaces.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0
 Math: 1.0, 3.0, 6.0, 7.0, 8.0, 9.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.8 Students shall demonstrate career planning and development skills.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Develop a plan to match careers with their personal characteristics. • Utilize the resources found in the Career Information System to describe careers in the animal industry. • Construct a career portfolio. • Participate in a job interview.
MEETS STANDARD	<p>15.8.1 Develop an employment resume.</p> <p>15.8.2 Complete a sample job application.</p> <p>15.8.3 Undergo a mock employment interview.</p> <p>15.8.4 Demonstrate career planning through the development of their SAE.</p> <p>15.8.5 Prepare a job application and personal resume.</p> <p>15.8.6 Complete a personal aptitude and interest inventory.</p> <p>15.8.7 Establish short-term and long-term career goals.</p> <p>15.8.8 Use the Nevada Career Information System or a similar computer-based program to research careers in a chosen field.</p> <p>15.8.9 Participate in an organized job-shadowing and community service activity.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Differentiate between work, job, occupation, and career. • Explain the diversity of agriculture education job placement. • List sources used in finding employment.

Nevada Academic Standards Correlation:
 English: 2.0, 4.0, 5.0, 6.0
 Math: 6.0
 Science: ---

**Animal Science/Veterinary Medicine
Performance Level Descriptors**

Content Standard 15.0: Employability Standard: Students shall achieve competence in workplace readiness, career development, and lifelong learning.

Performance Standard 15.9 Students shall demonstrate job-retention and lifelong-learning skills.	
EXCEEDS STANDARD	<ul style="list-style-type: none"> • Discuss how to merit employment promotions. • Develop a portfolio based on participation in SAE and leadership activities. • Participate in a school-based enterprise. • Maintain an employment/career portfolio.
MEETS STANDARD	<p>15.9.1 Identify and develop employability skills.</p> <p>15.9.2 Discuss and develop employable personal management skills.</p> <p>15.9.3 Discuss and develop employable academic and technical skills.</p> <p>15.9.4 Identify strategies for balancing work and family roles.</p> <p>15.9.5 Demonstrate understanding of the need for lifelong learning in a rapidly changing job market.</p> <p>15.9.6 Identify strategies to maintain employment in the face of job reductions.</p> <p>15.9.7 Develop long-term career planning strategies.</p> <p>15.9.8 Identify various educational options needed for job advancement.</p> <p>15.9.9 Demonstrate interpersonal skills needed for job retention.</p> <p>15.9.10 Identify and model sound workplace ethics, such as loyalty, punctuality, and initiative.</p>
APPROACHES STANDARD	<ul style="list-style-type: none"> • Explain the importance of positive response to authority. • Explain the proper procedure for leaving employment.

Nevada Academic Standards Correlation:
 English: 5.0, 6.0, 7.0, 9.0, 11.0
 Math: 6.0
 Science: ---

Crosswalk of Animal Science/Veterinary Medicine and Science Academic Standards

Performance Indicators	Science Academic Standards
8.1.4, 8.2.1, 8.2.2, 8.2.3, 8.5.4, 8.5.5	1.12.3 Investigate and describe that the usefulness of a simple machine such as a wheel or axle is based on its function, mechanical advantage, and efficiency.
8.1.2, 8.1.5	1.12.4 Investigate and describe the relationship that exists between force, pressure, and area in general, and between pressure and depth in liquids.
3.2.1, 3.2.2, 3.2.3	2.12.1 Investigate and describe intrinsic (color, odor, density) and extrinsic (e.g., size, mass, volume) physical properties of matter.
6.1.2, 6.2.3, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.4.1, 6.4.2, 6.4.4, 6.4.5, 8.1.5, 8.5.4, 10.2.1, 10.2.2, 10.2.3, 10.2.4, 11.1.1, 11.1.2, 11.1.4, 11.1.5, 11.1.6	2.12.5 Explain the properties of phases of matter in terms of the kinetic molecular theory and forces of attraction between particles.
6.1.2, 6.2.3, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.4.1, 6.4.2, 6.4.4, 6.4.5, 8.1.5, 8.5.4, 10.2.1, 10.2.2, 10.2.3, 10.2.4, 11.1.1, 11.1.2, 11.1.4, 11.1.5, 11.1.6	2.12.6 Explain that carbon atoms can bond to one another to form a large variety of structures, including the molecules essential to life.
6.1.2, 6.2.3, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.4.1, 6.4.2, 6.4.4, 6.4.5, 8.1.5, 8.5.4, 10.2.1, 10.2.2, 10.2.3, 10.2.4, 11.1.1, 11.1.2, 11.1.4, 11.1.5, 11.1.6	3.12.1 Explain that the transformation of energy usually results in some energy in the form of heat, which spreads by radiation, conduction, and sometimes convection into cooler places.
8.1.5, 8.5.4	3.12.2 Investigate and describe how pressure may affect changes of state.
8.1.5, 8.5.4	3.12.3 Investigate and describe how waves can superimpose on one another, bend around corners, reflect off surfaces, be absorbed by materials they enter, and change direction when entering a new material.
8.5.1, 8.5.2, 8.5.3, 8.5.4, 8.5.5	3.12.4 Describe the properties of electrical circuits in terms of moving electrons, conductivity, resistance, and electrical potential energy.
8.1.5	3.12.5 Investigate and describe how matter and energy may be changed and energy can be transferred in many ways, but the entire mass-energy budget of the universe remains constant.
8.1.2, 8.1.4, 8.1.5	3.12.6 Investigate and describe how systems tend to become less ordered over time.
6.3.2, 6.3.6, 6.3.7, 8.1.5	4.12.1 Investigate and describe how, in chemical reactions, elements combine in predictable ratios, and the numbers of atoms of each element do not change.
6.3.2, 6.3.6, 6.3.7, 8.1.5	4.12.2 Investigate and describe how chemical reaction rates depend on conditions in the reacting system, the properties of reacting materials, and the presence of certain rate-regulating chemicals.
8.1.2, 8.1.4	5.12.1 Predict how light interacts with matter (e.g., reflection and refraction).
1.2.1, 1.2.2	5.12.2 Simulate how the predictable rates of nuclear reactions can be used to estimate the age of some materials.
8.1.5	5.12.5 Explain how the forces that hold the nucleus of an atom together are usually stronger than other forces that could make the nucleus fly apart.
1.1.1, 1.1.2, 1.1.4, 2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 8.5.2	6.12.1 Explain how disease disrupts the equilibrium that exists in a healthy organism.

Performance Indicators	Science Academic Standards
2.3.1, 2.3.2, 6.1.1, 6.1.2, 6.2.1, 6.2.2, 6.2.3, 6.3.1, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.3.7, 6.4.1, 6.4.2, 6.4.4, 6.4.5, 6.4.6	6.12.3 Investigate and describe how food molecules are broken down through a series of chemical reactions to provide energy and the material to make new molecules.
1.1.1, 1.1.2, 1.1.4	6.12.4 Investigate and describe how every cell is covered by a cell membrane and most cells also have specialized parts for the transport of materials, energy, transfer, protein building, waste disposal, information feedback, and movement.
1.1.1, 1.1.2, 1.2.2, 1.4.1, 1.4.2, 8.3.1	7.12.1 Investigate and describe how some broad patterns of behavior exhibited by animals have evolved to ensure survival of the species.
1.1.1, 1.1.2, 1.2.2, 1.4.1, 1.4.2, 8.3.1	7.12.2 Investigate and describe how plant and animals have mechanisms that allow them to respond to changes in their environment.
2.2.3, 2.2.5	7.12.3 Investigate and describe how multicellular animals have nervous systems that receive input through sensory organs and generate behavioral responses.
7.1.2	7.12.4 Explain how certain viral diseases make the body vulnerable to multiple infectious agents and cancerous cells by destroying critical cells of the immune system.
3.1.1, 3.1.2, 3.1.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 5.1.1, 5.1.2, 5.1.3	8.12.1 Explain how all body cells in an organism are developed from a single cell and contain essentially identical genetic instructions. Explain how different parts of the instruction are used in different kinds of cells.
1.2.1, 1.2.2, 1.3.1, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4	8.12.2 Explain how relatedness among organisms can be estimated from the similarity of their DNA sequences.
1.2.1, 1.2.2, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2	8.12.3 Investigate and describe how sorting and recombination of genes in sexual reproduction results in a great variety of possible gene combinations.
1.4.2, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 5.1.1, 5.1.2, 5.1.3	8.12.4 Explain how genetic information from parents is encoded in DNA molecules and provides instruction for assembling protein molecules.
1.2.1, 1.2.2, 3.1.1, 3.1.2, 3.1.3, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.4	8.12.5 Investigate and describe how patterns of inheritance are described by laws of segregation and independent assortment.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.1, 1.2.2, 3.2.1, 3.2.2, 3.2.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4	8.12.6 Explain how diversity of species and variation among organisms within a species increase the chances for survival of life when large changes occur in the environment.
1.2.1, 1.2.2, 3.2.1, 3.2.2, 3.2.3, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3	8.12.7 Explain how gene mutations may be caused by a variety of influences, when mutations occur in sex cells, they can be passed on to offspring.
1.2.1, 1.2.2, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 5.1.1, 5.1.2, 5.1.3	9.12.1 Investigate and describe the basic idea of the theory of biological evolution is that through genetic and/or environmental influences the Earth's present-day species developed from earlier, distinctly different, but common ancestors.
1.2.2, 1.2.2	9.12.2 Explain the fossil record of ancient life forms by applying the idea of natural selection and its evolutionary consequences.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 4.1.1, 4.1.2	9.12.3 Simulate and explain how the adaptation of a species can occur over many generations because of the unique characteristics that favor those individuals in an environment.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 2.1.1, 2.1.2, 2.1.3	9.12.4 Explain how the classification of species is based on similarities (e.g., structural, genetic, molecular) which indicate evolutionary relationships.
1.2.1, 1.2.2	9.12.5. Explain how the extinction of species is a common occurrence

Performance Indicators	Science Academic Standards
	and fossil records indicate that most species that have lived on the earth no longer exist.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.4.1, 1.4.2	9.12.6. Investigate and describe how the process of evolution is driven by genetic and environmental influences.
4.2.1, 4.2.2, 4.2.3, 4.2.4	9.12.7 Explain how there is evidence that at least a billion years ago, cells with nuclei existed allowing the evolution of increasingly complex multicellular organisms.
11.2.1, 11.2.2	10.12.3 Explain how there is a relationship between the relative densities and states (phases) of Earth materials and the layering on, in, and above the Earth.
11.2.1, 11.2.2	10.12.4 Investigate and describe how soil is derived from weathered rocks and decomposed organic material, and is found in layers.
11.1.2	10.12.5 Explain how the composition of the Earth's atmosphere has changed in the past and continues to change.
11.2.1, 11.2.2	10.12.6 Compare and contrast the geologic features of Nevada and local geological features.
11.2.1, 11.2.2	11.12.3 Investigate, design, and use contour maps.
11.2.1, 11.2.2	11.12.4 Define location on the Earth in terms of latitude, longitude, and time zones.
1.2.1, 1.2.2, 1.3.1	12.12.1 Explain how catastrophic events have occurred and greatly influenced Earth's history.
1.2.1, 1.2.2	12.12.2 Simulate and explain how relative geologic time can be estimated by observing rock sequences and using fossils to correlate the sequences at various locations.
1.2.1, 1.2.2	12.12.3 Compare and contrast the variety of methods by which geologic time is determined, including radioactive dating.
8.1.5	13.12.3 Investigate and describe how water is a solvent, (e.g., how it dissolves minerals and gases as it passes through the water cycle and carries them to oceans and lakes)
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3	13.12.5 Explain how large-scale, long-term equilibrium can accommodate small-scale changes.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3	13.12.6 Investigate and describe how elements necessary for life on Earth pass through both living and non-living cycles in a series of changes that form a global system.
11.1.2	13.12.7 Compare and contrast the relationships between the greenhouse effect and the idea of global warming.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.1, 1.2.2	15.12.1 Investigate and describe how changes in an ecosystem can affect bio-diversity and bio-diversity contributes to an ecosystem's stability.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.1, 1.2.2, 1.3.1, 1.4.1, 1.4.2	15.12.2 Investigate and describe how ecosystems change or remain the same in response to different kinds of influences.
1.2.1, 1.2.2, 1.4.1, 1.4.2	15.12.3 Investigate and describe how materials and energy are cycled and recycled through ecosystems via pathways known as food webs.
11.2.1, 11.2.2	15.12.4 Describe the unique geologic, hydrologic, climatic, and biological characteristics of Nevada's bioregions. (e.g., Northern NV cold desert, Southern low warm desert, Mountain).
1.2.1, 1.2.2, 11.1.1, 11.1.2, 11.1.5	16.12.1 Evaluate the consequences of changing patterns of resources use.
13.1.1, 14.1.1	16.12.3 Investigate and describe the career opportunities associated with the study, exploration, extraction, utilization, protection, and restoration of natural resources.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.4.1, 1.4.2, 11.1.2	16.12.4 Analyze and describe the limitations of the Earth's ability to respond to stresses produced by human or natural activities.
1.2.1, 1.2.2, 4.1.1, 4.1.2	16.12.5 Analyze and evaluate the effects that increases in human

Performance Indicators	Science Academic Standards
	populations can cause (e.g., resource depletion and environmental degradation).
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3	17.12.1 Analyze and evaluate how consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts.
1.1.1, 1.1.2, 1.1.3, 1.1.4	17.12.2 Investigate and describe how human actions may impact the dynamic equilibrium of global systems (e.g., global warming, ozone depletion).
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.3.1, 1.3.2, 1.3.3, 1.4.1, 1.4.2	17.12.3 Explain that there is scientific uncertainty regarding many environmental issues.
11.1.2	17.12.4 Evaluate and describe actions which affect the global environment in terms of trade-offs that may have effects on local environments or economics.
14.1.2, 14.1.3, 14.1.4, 14.1.5, 14.1.6, 15.1.1, 15.1.2, 15.1.3, 15.1.4, 15.1.5, 15.1.6	18.12.1 Explain that the scientific way of knowing uses a critique and consensus process (e.g., peer review, openness to criticism, logical argument, skepticism).
1.1.1	18.12.2 Investigate and explain how research emphasis is influenced by economic and public policy.
1.1.1, 4.4.1, 4.4.2	18.12.3 Investigate and explain how scientific innovations that were originally challenged are now widely accepted.
1.1.1, 1.2.1, 1.2.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	18.12.4 Explain that scientists work with others to resolve differences in interpretation of observations.
1.1.4, 1.2.1, 1.2.2, 1.4.1, 1.4.2, 4.4.1, 4.4.2	18.12.5 Explain that technological problems create a demand for new scientific knowledge and new technologies which make it possible for scientists to extend their research in new ways or to undertake entirely new lines of research.
1.2.1, 1.2.2, 1.3.1, 4.4.1, 4.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	18.12.6 Explain that scientific knowledge builds on previous information, and rarely are entire theories completely discarded in favor of new ones.
4.4.1, 4.4.2	18.12.7 Explain that scientists have ethical procedures, violations of which have consequences.
1.2.1, 1.2.2, 15.2.5, 15.2.6	19.12.1 Identify and determine the credibility of sources of information based on the techniques used to gather that information.
1.1.1, 1.1.2, 1.1.2, 1.1.4, 13.1.3	19.12.2 Apply cost benefit and risk analysis in decision-making processes.
1.3.1, 1.3.2, 1.3.3, 2.1.1, 2.1.2, 2.1.3	19.12.3 Recognize and describe situations in which a system is qualitatively different from the parts which comprise it (e.g., how a population differs from an individual).
1.3.1, 1.3.2, 1.3.3, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	19.12.4 Distinguish between hypotheses, laws, theories and rules, and explain the level of their limitations.
15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	19.12.5 Determine the limits of generalizations, assumptions, analogies, and models.
1.1.1, 15.3.4	20.12.1 Use mathematical symbols and formulas to express relationships that behave in the same ways as the objects or processes under investigation.
1.1.1, 1.2.1, 1.2.2, 15.3.4	20.12.2 Use models to identify and predict cause-effect relationships (e.g., effect of temperature on gas volume, effect of carbon dioxide level on the greenhouse effect).
1.1.1, 1.1.4, 1.4.1, 1.4.2, 2.1.1, 2.1.2, 2.1.3	20.12.3 Identify and describe how systems are often different from their components. (e.g., aquaria or automobiles)
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 15.3.4, 15.3.10	20.12.4 Compare groups of data, taking into account both percentages and actual numbers.

Performance Indicators	Science Academic Standards
1.2.1, 1.2.2, 9.3.1, 9.3.2, 9.3.3, 10.2.1, 10.2.2, 10.2.3, 10.2.4, 11.1.2, 11.1.5, 11.1.6, 11.3.1,	20.12.5 Identify the type of hazard, estimate the extent and consequences of exposure, and determine the options for reducing or eliminating risks.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 3.1.1, 3.1.2, 3.1.3, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	21.12.1 Demonstrate curiosity, honesty, and skepticism in doing science.
15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	21.12.2 Repeat experimentation for statistical analysis and to produce conclusions that are without bias.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	21.12.3 Evaluate multiple explanations for the same evidence.
15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	22.12.1 Analyze experimental procedures and suggest appropriate revisions for improvement.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 15.3.10	22.12.2 Use tables, charts, and graphs in making arguments and claims in oral and written presentations.
1.2.1, 1.2.2, 1.4.1, 1.4.2, 15.2.1, 15.3.2, 15.3.3, 15.3.4, 15.3.5, 15.3.6, 15.3.7, 15.3.8, 15.3.9, 15.3.10, 15.3.11, 15.3.12, 15.3.13, 15.3.14, 15.4.1, 15.4.2, 15.4.3, 15.4.4, 15.4.5, 15.4.6, 15.4.7, 15.4.8, 15.4.9, 15.4.10, 15.4.11, 15.4.12	22.12.3 Discuss scientific topics by restating or summarizing accurately what others have said; ask for clarifications or elaborations, and express alternative positions using available multimedia resources.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 3.1.1, 3.1.2, 3.1.3, 4.1.1, 4.1.2, 4.3.1, 4.3.2, 4.3.3	23.12.1 Determine if the correlation between variables is high or low.
6.3.1, 6.4.5, 8.1.1, 8.5.2, 13.1.4, 15.4.2	23.12.2 Use algebraic equations when appropriate.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.3.1, 1.3.2, 1.3.3	23.12.3 Estimate answers to the correct order of magnitude.
3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.4.2, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.3.7, 6.4.5, 8.1.1	23.12.4 Use derived quantities, ratios, proportions, and constants.
1.2.1, 1.2.2, 6.3.1, 8.1.1, 13.1.3	23.12.5 Trace the source of differences between an estimate and the calculated answer that exceeds agreed-upon standards for precision.
6.3.7	23.12.6 Select samples by some random system to avoid bias.
8.2.1, 8.2.2, 8.2.3	24.12.1 Demonstrate personal responsibility for using safety equipment and observing all safety standards.
6.3.4	24.12.2 Use the information found in materials safety data sheets to handle, store, and dispose of chemicals properly.
8.2.1, 8.2.2, 8.2.3	24.12.3 Inspect, manipulate, and describe the functions of various parts of technical and scientific equipment.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 1.4.1, 4.1.2, 4.3.2, 4.3.3, 4.4.1, 4.4.2, 5.1.3, 5.2.4, 5.4.1, 5.4.2, 6.3.1, 6.3.7, 6.4.1, 6.4.6, 8.1.1, 8.1.2, 8.1.5, 11.1.5, 11.1.6, 11.2.2, 13.1.2, 13.1.2, 13.1.3, 13.1.4, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	24.12.4 Maintain a permanent record of procedures, data, analyses, decisions, and understandings of scientific investigations.
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 1.4.1, 4.1.2, 4.3.2, 4.3.3, 4.4.1, 4.4.2, 5.1.3, 5.2.4, 5.4.1, 5.4.2, 6.3.1, 6.3.7, 6.4.1, 6.4.6, 8.1.1, 8.1.2, 8.1.5, 11.1.5, 11.1.6, 11.2.2, 13.1.2, 13.1.2, 13.1.3, 13.1.4, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	24.12.5 Write procedures for the investigation of delegated or original scientific problems.

Performance Indicators	Science Academic Standards
1.2.1, 1.2.2, 1.3.1, 1.3.2, 1.3.3, 1.4.1, 4.1.2, 4.3.2, 4.3.3, 4.4.1, 4.4.2, 5.1.3, 5.2.4, 5.4.1, 5.4.2, 6.3.1, 6.3.7, 6.4.1, 6.4.6, 8.1.1, 8.1.2, 8.1.5, 11.1.5, 11.1.6, 11.2.2, 13.1.2, 13.1.2, 13.1.3, 13.1.4, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	24.12.6 Carry out an independent scientific investigation.

Crosswalk of Animal Science/Veterinary Medicine and Mathematical Academic Standards

Performance Indicators	Mathematical Academic Standards
3.4.2, 4.1.1, 4.4.1, 4.4.2, 6.3.1, 6.3.4, 6.4.5, 8.1.1, 8.1.3, 8.5.2, 13.1.3, 15.3.10, 15.4.2, 15.7.10	1.12.2 Apply the laws of exponents to perform operations on expressions with integral exponents and expressions in scientific notation.
3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.4.2, 5.4.1, 6.3.1, 6.3.4, 8.1.1, 8.1.3, 8.5.1, 8.5.2, 10.2.4, 11.2.1, 11.2.2, 13.1.3, 15.3.10, 15.4.2, 15.7.10	1.12.3 Apply the properties and theories of the real number system to everyday situations.
3.3.1, 3.3.3, 3.4.2, 4.1.1, 4.3.1, 4.4.1, 5.1.1, 5.2.2, 6.3.1, 8.1.1, 11.2.1, 15.4.2	1.12.5 Perform simple operations on matrices.
3.3.1, 3.3.3, 3.4.2, 4.1.1, 4.3.1, 4.4.1, 5.1.1, 5.2.2, 6.3.1, 8.1.1, 11.2.1, 15.4.2	2.12.2 Represent and solve problems using discrete structures including graphs and matrices, with and without technology.
6.1.2, 6.3.1, 6.4.1, 6.4.5, 8.1.1, 8.1.3, 8.5.2, 10.1.2, 11.2.1, 13.1.3	2.12.3 Create and use different forms of a variety of equations, proportions, and/or formulas (e.g., $I=PRT$ or $R=I/PT$), solving for the needed variable as necessary in given situations.
3.3.1, 3.4.2, 4.1.1, 4.4.1, 6.3.1, 6.3.4, 6.4.5, 8.1.1, 8.5.2, 11.2.1, 13.2.3	2.12.4 Add, subtract, multiply, and factor (1^{st} and 2^{nd} degree) polynomials, describing each step in the process and the connection between the algebraic process and the arithmetic process; use simple quadratic equations with integer roots to solve practical and mathematical problems.
3.3.1, 3.3.3, 3.4.1, 3.4.2, 4.4.1, 5.4.1, 5.4.2, 6.1.2, 6.3.1, 6.3.4, 6.4.5, 8.1.1, 8.1.3, 8.5.1, 8.5.2, 11.2.1, 11.2.2	2.12.5 Model practical problems from everyday situations with a variety of models that includes matrices, translating among tabular, symbolic and graphical representations of functions, with and without technology.
3.3.1, 4.2.4, 8.1.2, 8.5.2, 11.2.1, 11.2.2, 15.4.2	2.12.6 Determine the domain and range of linear relations given a graph or a set of ordered pairs; explain their importance in problem solving situations.
3.3.1, 4.2.4, 8.1.2, 8.5.2, 11.2.1, 11.2.2, 15.4.2	2.12.7 Solve systems of two linear equations, both algebraically and graphically; use graphing calculators as a primary tool in solving these problems and to verify solutions found by other methods.
3.4.2, 6.3.1, 6.3.4, 6.4.5, 8.1.1, 8.5.2	3.12.1 Convert between customary and metric systems; convert among monetary systems.
2.3.2, 3.1.2, 3.2.3, 3.3.1, 3.3.3, 3.4.1, 4.4.1, 6.2.2, 6.3.1, 6.3.4, 6.3.6, 6.4.5, 8.1.1, 8.1.3, 8.5.2, 8.5.4, 10.1.1, 10.1.2, 11.2.1, 11.2.2, 13.1.4, 15.4.4, 15.4.10, 15.7.10	3.12.2 Select and use measurement tools, techniques, and formulas to calculate and compare rates, cost, distances, interest, temperatures, and weight/mass.
2.3.2, 3.1.2, 3.2.3, 3.3.1, 3.3.3, 3.4.1, 4.4.1, 6.2.2, 6.3.1, 6.3.4, 6.3.6, 6.4.5, 8.1.1, 8.1.3, 8.5.2, 8.5.4, 10.1.1, 10.1.2, 11.2.1, 11.2.2, 13.1.4, 15.4.4, 15.4.10, 15.7.10	3.12.3 Distinguish and differentiate among the structures, language and uses of systems of measures (e.g., linear, square units, cubic units); justify and communicate the differences between accuracy, precision, error, and tolerance in measurement; describe how each of these can affect solutions found in problem situations.
8.1.3, 10.1.1, 10.1.2, 10.1.3, 13.1.3, 15.4.2, 15.7.11	3.12.4 Use and interpret consumer data (e.g., amortization tables, tax tables, and compound interest charts) to make informed financial decisions related to practical applications such as budget.
2.2.2, 3.4.2, 5.3.2, 6.3.4, 6.4.5, 8.1.1, 8.1.2, 8.4.1, 8.5.2, 8.5.4, 10.1.1, 10.1.2, 11.2.1, 11.2.2	3.12.5 Use relationships (e.g., proportions) and formulas (indirect measurement) to determine the measurement of unknown dimensions, angles, areas, and volumes to solve problems.
8.1.1, 8.1.2	4.12.1 Identify and use the properties of polygons (including interior and exterior angles) and elements of circles (e.g., angles, arcs, chords, secants and tangents) to solve practical problems.
8.1.1, 8.1.2	4.12.5 Use coordinate geometry to graph linear equations, determine slopes of lines, identify parallel and perpendicular lines and find possible solutions to sets of equations; use algebraic techniques to

Performance Indicators	Mathematical Academic Standards
	solve problems determined by geometric relationships.
8.1.1, 8.1.2	4.12.6 Use complementary and supplementary angles, congruent angles, vertical angles, angles formed when parallel lines are cut by a transversal, and angles in polygons to solve practical problems.
8.1.1, 8.1.2	4.12.7 Apply the Pythagorean Theorem, its converse, properties of special right triangles, and right triangle trigonometry to solve practical problems.
8.1.1, 8.1.2	4.12.8 Use tools, technology, and models to sketch, draw, and construct geometric figures in order to solve problems and to demonstrate the properties of geometric figures.
1.2.1	4.12.9 Construct, justify and defend mathematical conclusions using logical, sequential, deductive reasoning supported by established mathematical principles.
6.3.1, 6.4.5, 13.1.3, 15.3.10, 15.4.1, 15.4.2, 15.4.3, 15.4.5, 15.4.10	5.12.1 Use calculators and computers to create and manipulate tables, graphs, and matrices to communicate statistical information; use the shape of graphs of normal distributions to compare and analyze information.
3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.4.2, 10.1.1	5.12.3 Distinguish between and apply permutations and combinations using a variety of methods, including The Fundamental Counting Principle.
3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.3.1, 5.2.1, 5.4.1, 6.2.2, 6.3.1, 6.4.5, 8.1.1, 10.2.4, 11.2.1, 11.2.2	5.12.4 Select and use the measures of central tendency such as mean, median, mode and variability including range, distribution and possible outliers that are appropriate for given situations.
1.2.1, 6.4.6, 8.4.3, 9.1.1, 9.1.2, 10.3.2, 10.3.3, 11.1.2, 11.1.3	5.12.5 Analyze the validity of statistical conclusions noting various sources of bias, misuse, and abuse of data caused by a wide variety of factors including choices of scale, probability versus odds, inappropriate uses of measures of central tendency, inaccurate curve fitting and inappropriate uses of controls or sample groups.
15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7	5.12.6 Design, construct, analyze, and select an appropriate type of graph to represent data to communicate the results of statistical experiments (e.g., write a survey question and analyze and communicate the findings).
1.3.2, 1.4.1, 1.4.2, 2.1.1, 2.1.2, 2.1.3, 3.2.1, 3.2.2, 3.3.3, 4.2.4, 4.4.1, 4.4.2, 6.1.2, 6.3.1, 6.3.2, 6.3.4, 8.1.1, 13.1.3, 14.1.1	6.1 Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts.
Applies to all aspects of Animal Science	6.2 Apply previous experience and knowledge to new problem-solving situations.
1.4.1, 1.4.2, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.3.3, 5.2.1, 5.2.2, 5.3.5, 6.3.1, 6.3.2, 8.1.1, 8.1.3, 11.2.2, 11.3.1, 15.7.10	6.5 Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient strategy for the given situation.
1.4.1, 1.4.2, 3.3.3, 3.4.1, 3.4.2, 4.1.2, 4.2.4, 6.3.1, 8.1.1, 8.1.3, 11.3.1	6.6 Try more than one strategy when the first strategy proves to be unproductive.
3.3.3, 3.4.1, 4.1.2, 4.2.4, 4.3.3, 6.3.1, 8.1.1, 11.2.2, 15.7.11	6.7 Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists.
1.4.1, 3.2.1, 3.3.3, 3.4.1, 4.1.2, 4.2.4, 4.3.3, 6.3.1, 8.1.1, 8.1.3, 11.2.1	6.9 Generalize solutions and strategies from earlier problems to new problem situations.
3.3.3, 3.4.1, 4.1.2, 6.3.1, 6.3.4, 11.2.1	6.10 Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, selecting and justifying efficient methods and/or strategies, and ensuring the answer is reasonable.
3.3.3, 6.3.1, 11.2.1	6.11 Apply combinations of proven strategies and previous knowledge to solve non-routine problems.
3.3.3, 6.3.1, 11.2.1	6.13 Use technology, including calculators, to solve problems and

Performance Indicators	Mathematical Academic Standards
	verify solutions
3.4.1, 4.1.2, 4.2.4, 6.3.1, 6.3.2, 8.1.1, 8.1.3, 15.4.2, 15.4.8, 15.4.9	6.14 Use technology, including calculators, to investigate, define, and describe quantitative relationships such as patterns and functions.
3.3.3, 4.1.2, 4.2.1, 4.2.2, 4.3.3, 6.3.1, 6.4.5, 8.1.1, 8.1.3	7.1 Discuss and exchange ideas about mathematics as a part of learning.
1.4.1, 1.4.2, 3.3.3, 4.1.1, 4.1.2, 4.3.3, 6.3.1, 6.4.5, 8.1.1, 11.1.5	7.2 Use inquiry techniques (e.g., discussion, questioning, research, data gathering) to solve mathematical problems.
1.2.2, 1.3.2, 1.4.1, 1.4.2, 4.1.1, 4.2.2, 4.3.3, 6.3.1, 8.1.1, 8.5.1	7.6 Interpret and solve word problems without the necessity of key words or phrases.
1.4.2, 3.2.1, 3.3.3, 4.1.1, 6.3.1, 6.4.5, 8.1.1, 10.2.3, 10.4.1, 11.2.1	7.9 Model and explain mathematical relationships using oral, written, graphical, and algebraic methods.
13.1.3, 13.1.4, 14.1.1, 15.1.1, 15.1.3, 15.1.4, 15.2.3, 15.2.4	7.10 Evaluate the effectiveness of written and oral presentations of mathematics.
1.2.2, 3.3.1, 3.3.3, 4.1.2, 4.2.4, 4.4.2, 15.7.11	7.15 Use everyday language to explain thinking about strategies and solutions to mathematical problems.
1.2.2, 1.4.1, 1.4.2, 3.3.1, 3.3.3, 3.4.1, 4.1.2, 4.4.2, 6.3.1, 6.3.4, 6.4.4, 6.4.5, 8.1.1, 8.1.3, 11.1.2, 11.2.2	7.16 Express mathematical ideas and use them to define, compare, and solve problems orally and in writing.
1.4.2, 3.3.3, 4.1.2, 6.3.1, 6.4.4, 8.1.1, 10.1.3, 11.1.2, 11.2.2, 11.3.1	7.17 Use mathematical notation to communicate and explain mathematical situations.
1.2.2, 1.4.2, 3.3.1, 3.3.3, 4.1.2, 4.2.4, 4.3.1, 4.3.3, 4.4.2, 6.3.1, 6.3.4, 8.1.1, 8.1.3, 8.1.4, 10.1.3, 11.2.2, 13.1.3, 14.1.1	8.3 Construct, justify, and defend mathematical conclusions using logical arguments, in situations related to mathematics, science, and technology.
1.2.2, 1.4.2, 3.3.1, 3.3.3, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.4, 6.3.1, 6.3.4, 6.3.7, 6.4.5, 8.1.1, 8.5.1, 11.2.1, 11.2.2, 14.1.1, 15.7.10, 15.7.11	8.4 Use patterns and relationships to analyze mathematical situations; draw logical conclusions about mathematical problems.
1.2.2, 1.4.2, 3.3.1, 3.3.3, 4.1.2, 4.2.4, 4.3.1, 4.3.3, 4.4.2, 6.3.1, 6.3.4, 8.1.1, 8.1.3, 8.1.4, 10.1.3, 11.2.2, 13.1.3, 14.1.1	8.5 Follow a logical argument and judge its validity.
1.2.1, 1.2.2, 1.4.1, 3.3.3, 3.4.2, 4.2.4, 4.3.3, 5.2.1, 6.3.1, 6.3.4, 6.4.5, 8.1.1, 8.1.3, 11.2.1, 15.7.10	8.7 Recognize and apply deductive and inductive reasoning in both concrete and abstract contexts.
1.4.2, 3.3.1, 3.4.1, 4.1.2, 4.2.4, 6.3.1, 6.3.4, 6.4.1, 6.4.5, 9.1.1, 9.3.3, 11.1.1, 11.2.2, 11.3.1, 15.7.10, 15.7.11	8.8 Ask questions to reflect on, clarify, and extend thinking.
3.3.1, 3.3.3, 4.1.2, 4.3.1, 4.4.2, 6.3.1, 6.4.5, 8.1.1	8.9 Review and refine the assumptions and steps used to derive conclusions in mathematical arguments.
1.3.3, 3.3.3, 4.3.1, 4.3.3, 6.3.1, 6.3.4, 6.3.7, 8.1.1, 11.2.1, 11.2.2, 14.1.1, 15.7.10	8.11 Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems.
1.2.2, 1.4.2, 3.3.1, 3.3.3, 4.1.2, 4.2.4, 4.3.1, 4.3.3, 4.4.2, 6.3.1, 6.3.4, 8.1.1, 8.1.3, 8.1.4, 10.1.3, 11.2.2, 13.1.3, 14.1.1	9.1 Link new concepts to prior knowledge.
1.3.2, 1.3.3, 1.4.2, 3.3.1, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.1.2, 4.3.1, 4.3.3, 6.3.1, 6.3.6, 6.4.5, 8.1.1, 8.1.3, 11.2.1, 11.2.2, 13.1.3, 14.1.1, 15.7.11	9.3 Use models to explain the relationship of concepts to procedures.
1.3.2, 1.4.2, 2.2.1, 2.2.2, 2.2.3, 2.5.2, 2.5.3, 3.3.1, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.4, 4.3.1, 4.3.3, 4.4.2, 6.3.1, 6.3.2, 6.3.4, 6.4.1, 6.4.2, 6.4.5, 8.1.1, 8.1.3, 11.2.1, 11.2.2, 13.1.3, 15.7.10	9.4 Use the connections among mathematical topics to develop multiple approaches to problems.
1.3.2, 1.4.2, 2.2.1, 2.2.2, 2.2.3, 2.5.2, 2.5.3,	9.6 Use and analyze the connections between

Performance Indicators	Mathematical Academic Standards
3.3.1, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.4, 4.3.1, 4.3.3, 4.4.2, 6.3.1, 6.3.2, 6.3.4, 6.4.1, 6.4.2, 6.4.5, 8.1.1, 8.1.3, 11.2.1, 11.2.2, 13.1.3, 15.7.10	Mathematics and other disciplines.
1.3.2, 1.4.2, 2.2.1, 2.2.2, 2.2.3, 2.5.2, 2.5.3, 3.3.1, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.4, 4.3.1, 4.3.3, 4.4.2, 6.3.1, 6.3.2, 6.3.4, 6.4.1, 6.4.2, 6.4.5, 8.1.1, 8.1.3, 11.2.1, 11.2.2, 13.1.3, 15.7.10	9.7 Apply mathematical thinking and modeling to solve problems that arise in other disciplines (e.g., rhythm in music and motion in science).
1.3.2, 1.3.3, 1.4.2, 3.3.1, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.1.2, 4.3.1, 4.3.3, 6.3.1, 6.3.6, 6.4.5, 8.1.1, 8.1.3, 11.2.1, 11.2.2, 13.1.3, 14.1.1, 15.7.11	9.8 Identify, explain, and use mathematics in everyday life.

Crosswalk of Animal Science/Veterinary Medicine and English Language Arts Academic Standards

Performance Indicators	English Language Arts Academic Standards
1.1.1, 2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 5.3.1, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 8.5.1, 8.5.2, 15.3.1, 15.3.2, 15.3.12	1.12.3 Apply knowledge of Anglo-Saxon-, Greek-, and Latin-derived roots and affixes to determine the meaning of unknown vocabulary across the curriculum.
1.1.1, 2.1.1, 2.1.2, 2.1.3, 2.3.1, 3.2.1, 3.3.2, 3.4.2, 4.2.1, 4.2.2	1.12.4 Discern subtle differences between closely related words (e.g., thin and slender); use references as necessary.
1.3.1, 1.3.3, 2.1.1, 2.1.2, 2.2.1, 3.2.1, 4.1.1, 4.2.1, 4.2.2, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 9.2.1, 9.3.1, 9.3.2, 10.4.1, 15.1.5, 15.1.6, 15.2.1, 15.2.3, 15.2.7, 15.3.1, 15.3.4, 15.3.6, 15.3.8, 15.3.12	1.12.5 Apply knowledge of syntax and literary allusions to acquire an understanding of new words and to comprehend text.
15.1.1, 15.1.4, 15.2.1, 15.2.1, 15.2.6, 15.2.7, 15.3.1, 15.3.3, 15.3.12, 15.3.4, 15.3.6, 15.3.8, 15.3.9, 15.3.11, 15.8.1	2.12.2 Use specific repair strategies such as summarizing, clarifying ambiguities, and consulting other sources.
15.1.1, 15.1.4, 15.1.5, 15.2.3, 15.3.1, 15.3.3, 15.3.4, 15.3.5, 15.3.6, 15.3.8, 15.3.9, 15.3.11, 15.3.12, 15.3.14, 15.8.1, 15.8.2, 15.8.5	4.12.1 and 4.12.2 Analyze text features and rhetorical strategies of different types of primary source documents (e.g., policy statements, speeches, debates, diaries, platforms) and identify how authors use the features to achieve their purposes.
1.1.1, 1.4.1, 1.4.2, 3.2.1, 3.2.2, 3.2.5, 3.3.1, 3.3.2, 3.3.3, 3.4.2, 4.1.2, 4.4.2, 5.1.3, 5.2.3, 5.3.6, 5.4.1, 5.4.2, 6.3.7, 6.4.6, 8.1.1, 8.1.2, 8.1.4, 8.1.5, 8.2.3, 9.1.1, 9.1.2, 9.2.1, 9.2.2, 9.3.1, 9.3.2, 9.3.3, 10.1.3, 10.2.1, 10.2.2, 10.4.2, 11.1.1, 11.1.2, 11.1.3, 11.1.4, 11.1.5, 11.1.6, 11.2.1, 11.2.2, 11.3.1, 15.1.1, 15.1.3, 15.1.4, 15.1.5, 15.1.6, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.2.7, 15.3.1, 15.3.3, 15.5.1, 15.8.2	4.12.3 Locate, organize, interpret, and synthesize information in multiple primary and secondary sources to support ideas and positions.
1.4.1, 1.4.2, 4.4.2, 5.4.1, 5.4.2, 6.4.6, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 8.1.4, 8.1.5, 9.1.1, 9.1.2, 9.3.1, 9.3.2, 9.3.3, 10.1.3, 10.2.1, 10.2.2, 11.1.2, 11.1.3, 11.1.4, 11.1.6, 11.2.1, 11.2.2, 15.2.3, 15.2.4, 15.2.4, 15.2.6, 15.3.4, 15.5.1, 15.5.3, 15.5.11	4.12.4 Critique the power, logic, reasonableness, and audience appeal of arguments advanced in texts.
3.3.1, 3.3.3, 3.4.1, 3.4.2, 4.2.1, 4.2.2, 4.3.1, 4.3.3, 5.1.1, 5.1.2, 5.3.1, 5.3.2, 5.3.3, 5.3.5, 5.3.6, 6.3.1, 6.3.2, 6.3.3, 6.3.4, 6.3.6, 6.3.7, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 8.1.1, 8.1.2, 8.1.3, 8.1.4, 13.1.11, 14.1.12, 13.1.3, 13.1.4, 14.1.2, 15.1.1, 15.1.3, 15.1.4, 15.1.5, 15.1.6, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.7, 15.4.2, 15.4.3, 15.4.4, 15.4.7, 15.4.8, 15.4.9, 15.4.10, 15.4.11, 15.4.12	4.12.5 Analyze how historical and cultural contexts influence the content and validity of informational texts.
1.1.1, 1.2.1, 1.2.2, 1.4.1, 1.4.2, 2.2.5, 2.3.2, 3.2.1, 3.2.2, 3.2.3, 3.3.3, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.2, 4.3.3, 4.4.2, 5.1.1, 5.1.2, 5.1.3, 5.2.2, 5.2.3, 5.2.4, 5.3.1, 5.3.2, 5.3.3, 5.3.5, 5.3.6, 5.4.1, 5.4.2, 5.4.3, 6.1.1, 6.1.2, 6.2.2, 6.2.3, 6.3.2, 6.3.3, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 8.1.4, 8.1.5, 8.2.2, 8.2.3, 8.3.1, 8.4.1, 8.4.2, 8.4.3, 9.1.1, 9.1.2, 9.2.1, 9.3.1, 9.3.2, 9.3.3, 10.1.1, 10.1.2, 10.1.3, 10.2.1, 10.2.2, 10.2.4, 10.3.1, 10.3.2, 10.4.1, 10.4.2, 11.1.1, 11.1.2, 11.1.3, 11.1.4, 11.1.5, 11.1.6, 11.2.2, 11.3.1, 12.1.2, 14.1.3, 14.1.4,	5.12.1 Write a research paper that develops a thesis, contains information selected from at least ten sources, and conforms to a style manual.

Performance Indicators	English Language Arts Academic Standards
14.1.6, 15.1.4, 15.2.2, 15.2.5, 15.2.6, 15.3.2, 15.3.12, 15.5.5, 15.5.6, 15.5.8, 15.6.3, 15.9.5, 15.9.7	
8.1.1, 8.1.2, 8.1.3, 8.1.4, 8.1.5, 8.2.1, 8.2.2, 8.2.3, 8.5.1, 8.5.2, 8.5.3, 8.5.4, 8.5.5, 11.1.5, 12.1.2, 15.7.10	5.12.2 Produce subject-specific technical writing, such as instructions for a shop project or field reports for science.
1.1.1, 1.2.1, 1.2.2, 1.4.1, 1.4.2, 2.2.5, 2.3.2, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 3.3.2, 3.3.3, 3.4.2, 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.3.3, 4.4.2, 5.1.1, 5.1.2, 5.1.3, 5.2.2, 5.2.4, 5.3.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.3.6, 5.4.1, 5.4.2, 5.4.3, 6.1.1, 6.1.2, 6.2.2, 6.2.3, 6.3.3, 6.3.5, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 8.1.5, 8.3.1, 8.4.2, 8.4.3, 8.5.1, 8.5.2, 8.5.3, 8.5.4, 8.5.5, 9.1.1, 9.1.2, 9.2.1, 9.2.2, 9.3.1, 9.3.2, 9.3.3, 10.1.1, 10.1.2, 10.1.3, 10.2.1, 10.2.2, 10.2.3, 10.2.4, 10.3.1, 10.3.2, 10.4.1, 10.4.2, 11.1.1, 11.1.2, 11.1.3, 11.1.4, 11.1.5, 11.1.6, 11.2.1, 11.2.2, 11.3.1, 12.1.1, 12.1.2, 13.1.1, 14.1.3, 14.1.4, 14.1.6, 15.1.1, 15.1.2, 15.1.4, 15.1.5, 15.2.2, 15.2.5, 15.2.6, 15.2.7, 15.3.2, 15.3.3, 15.3.5, 15.2.8, 15.3.12, 15.5.5, 15.5.6, 15.5.13, 15.6.3, 15.6.3, 15.6.5, 15.7.3, 15.8.7, 15.9.4, 15.9.6	5.12.5 Write summaries or abstracts that distill large amounts of information into clear, concise prose.
1.1.1, 1.1.2, 1.1.3, 1.2.2, 1.3.3, 1.4.2, 2.2.5, 2.3.2, 3.2.2, 3.2.3, 3.3.1, 3.4.2, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.3.2, 4.3.3, 4.4.1, 4.4.2, 5.1.1, 5.1.2, 5.2.3, 5.3.1, 5.3.3, 5.3.6, 5.4.1, 6.2.2, 6.2.3, 6.3.5, 6.3.6, 6.3.7, 6.4.1, 6.4.2, 6.4.4, 6.4.5, 6.4.6, 7.3.2, 8.1.4, 8.1.5, 8.2.2, 8.3.1, 9.1.1, 9.1.2, 9.3.1, 9.3.2, 9.3.3, 10.1.3, 10.2.1, 10.2.2, 10.3.1, 10.3.3, 11.5.1, 11.1.2, 11.1.3, 11.1.5, 11.2.2, 11.3.1, 12.1.2, 13.1.1, 14.1.3, 14.1.4, 15.1.4, 15.1.5, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.3.3, 15.3.5, 15.3.8, 15.3.10	5.12.6 Write persuasive texts that evaluate, interpret, or speculate using specific rhetorical devices to support assertions; clarify and defend positions with precise and relevant evidence.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.1, 1.2.2, 1.3.3, 1.4.1, 1.4.2, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 4.1.1, 4.1.2, 4.4.1, 4.4.2, 5.1.3, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.3.2, 5.3.3, 5.3.5, 5.3.6, 5.4.1, 5.4.3, 6.1.1, 6.1.2, 6.2.2, 6.2.3, 6.3.1, 6.3.2, 6.3.5, 6.3.6, 6.3.7, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 8.1.2, 8.1.3, 8.1.4, 8.1.5, 8.2.1, 8.2.2, 8.2.3, 8.3.1, 8.4.1, 8.4.2, 8.4.3, 8.5.1, 8.5.2, 8.5.3, 8.5.4, 8.5.5, 9.1.1, 9.1.2, 9.3.1, 9.3.2, 9.3.3, 10.1.1, 10.1.2, 10.1.3, 10.2.1, 10.2.2, 10.3.1, 10.3.3, 10.4.1, 10.4.2, 11.1.2, 11.1.3, 11.1.4, 11.1.5, 11.1.6, 11.2.2, 11.3.1, 12.1.1, 12.1.2, 13.1.1, 14.1.1, 14.1.3, 14.1.4, 14.1.5, 14.1.6, 15.1.1, 15.1.2, 15.1.5, 15.1.6, 15.2.2, 15.2.3, 15.2.4, 15.2.5, 15.2.6, 15.3.2, 15.3.3, 15.3.4, 15.3.8, 15.4.4, 15.4.10, 15.5.8, 15.5.9, 15.5.10, 15.6.1, 15.7.3, 15.7.8, 15.8.6, 15.8.7, 15.8.8, 15.9.1, 15.9.2, 15.9.4, 15.9.5, 15.9.7, 15.9.10	6.12.1 Generate ideas for writing by selecting appropriate pre-writing strategies with attention to audience, purpose, and personal style.
1.1.1, 1.2.2, 1.4.1, 1.4.2, 3.2.1, 3.2.2, 4.1.1, 4.1.2, 4.2.1, 4.2.4, 4.3.1, 4.3.3, 4.4.1, 4.4.2, 5.1.3, 5.2.1, 5.2.3, 5.3.2, 5.3.6, 5.4.1, 5.4.2, 6.1.2, 6.2.2, 6.2.3, 6.3.5, 6.3.6, 6.4.6, 8.1.4, 8.1.5, 8.2.2, 8.4.2, 9.1.1, 9.1.2, 9.3.1, 9.3.2, 9.3.3, 10.2.1, 10.2.2, 10.3.1, 10.3.2, 11.1.1, 11.2.2, 11.3.1,	6.12.2 Organize ideas in compositions by selecting and applying structures such as comparison/contrast or cause/effect, which enhance the central idea, theme, or purpose.

Performance Indicators	English Language Arts Academic Standards
15.1.4, 15.2.3, 15.2.4, 15.2.6, 15.3.4, 15.3.8, 15.3.11, 15.3.12, 15.6.5, 15.9.4	
1.1.1, 1.2.1, 1.2.2, 1.4.1, 1.4.2, 2.2.5, 2.3.2, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.2.2, 3.3.1, 3.3.2, 3.3.3, 3.4.2, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.3.3, 4.4.1, 4.4.2, 5.1.1, 5.1.2, 5.1.3, 5.2.2, 5.2.3, 5.2.4, 5.3.2, 5.3.3, 5.3.5, 5.3.6, 5.4.1, 5.4.2, 5.4.3, 6.1.1, 6.1.2, 6.2.2, 6.2.3, 6.3.2, 6.3.3, 6.3.5, 6.3.6, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.1, 7.2.2, 7.3.1, 7.3.2, 7.4.1, 7.5.1, 7.6.1, 8.1.4, 8.1.5, 8.2.2, 8.2.3, 8.3.1, 8.4.1, 8.4.2, 9.1.1, 9.1.2, 9.2.1, 9.3.1, 9.3.2, 9.3.3, 10.1.1, 10.1.2, 10.1.3, 10.2.1, 10.2.2, 10.2.3, 10.2.4, 10.3.1, 10.3.2, 10.4.1, 10.4.2, 11.1.1, 11.1.2, 11.1.3, 11.1.4, 11.1.5, 11.1.6, 11.2.1, 11.2.2, 11.3.1, 12.1.2, 14.1.3, 14.1.4, 14.1.5, 14.1.6, 15.1.1, 15.1.2, 15.1.4, 15.1.5, 15.1.6, 15.2.2, 15.2.5, 15.3.2, 15.3.3, 15.3.4, 15.3.5, 15.3.12, 15.5.6, 15.5.8, 15.6.3, 15.6.5, 15.9.2, 15.9.2, 15.9.3, 15.9.4, 15.9.5, 15.9.6, 15.9.7, 15.9.8	6.12.3 Write compositions that present complex ideas in a sustained and compelling manner.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.3.1, 1.3.3, 1.4.1, 1.4.2, 2.1.1, 2.1.2, 2.1.3, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.4.1, 2.4.2, 2.5.1, 2.5.2, 2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.3.2, 3.3.3, 3.4.1, 3.4.2, 4.1.1, 4.1.2, 4.3.3, 4.4.1, 4.4.2, 5.2.1, 5.3.3, 5.3.5, 5.3.6, 5.4.1, 6.2.2, 6.3.2, 6.3.3, 7.1.1, 7.1.2, 7.1.3, 7.1.4, 8.1.4, 8.2.1, 8.2.2, 8.2.3, 8.3.1, 8.5.1, 8.5.2, 8.5.3, 8.5.4, 8.5.5, 9.1.1, 9.3.1, 9.3.2, 9.3.3, 10.1.1, 10.1.2, 11.1.1, 11.1.2, 11.1.3, 11.1.4, 11.1.5, 11.1.6, 11.2.2, 12.1.1, 13.1.1, 15.1.1, 15.2.2, 15.3.4, 15.3.6, 15.3.8, 15.3.9, 15.3.10, 15.3.12	6.12.4 Revise writing to improve word choice, organization, and point of view, using given criteria such as rubrics or feedback from others.
15.3.1, 15.3.2, 15.3.3, 15.3.4, 15.3.9, 15.3.8	6.12.5 Edit for use of standard English.
15.3.8, 15.3.9, 15.3.12, 15.4.4	6.12.7 Share final drafts with a designated audience.
1.1.1, 1.2.2, 2.1.1, 2.1.2, 2.1.3, 5.2.1, 5.2.2, 8.3.1, 8.5.1, 8.5.5, 10.1.1, 10.1.2, 12.1.1, 15.1.1, 15.2.2	7.12.3 Use rules of punctuation; manipulate conventions for emphasis in writing.
1.1.1-15.9.10	7.12.5 Demonstrate conventional spelling.
15.3.1, 15.3.2, 15.3.3, 15.3.8, 15.3.9, 15.3.14	8.12.3 Analyze the effects of language and dialect on audience response.
1.1.1-15.9.10	9.12.1 Use specific and varied vocabulary and apply standard English to communicate ideas.
1.1.1-15.9.10	9.12.2 Make formal oral or multi-media presentations, using vocabulary and public speaking techniques appropriate to audience and purpose.
2.1.1-2.5.3, 3.1.1, 3.1.2, 3.1.3, 3.4.2, 4.3.3, 5.1.1, 5.1.2, 5.1.3, 5.2.3, 5.3.1, 5.3.6, 6.2.2, 6.4.1, 6.4.2, 6.4.3, 6.4.4, 6.4.5, 6.4.6, 8.1.5, 10.1.3, 12.1.2, 15.5.5, 15.5.8, 15.6.3, 15.9.2, 15.9.3	9.12.3 Organize and deliver planned, extemporaneous, and impromptu presentations that address a topic and engage the audience.
1.1.1-15.9.10	9.12.4 Read aloud or recite literary, dramatic, and original works.
1.1.1, 1.1.2, 1.1.3, 1.1.4, 2.1.1-2.5.3, 3.3.2, 3.3.3, 5.2.1, 5.2.2	10.12.1 Participate in problem-solving conversations or group discussions by identifying, synthesizing, and evaluating data.
1.1.1, 1.3.1, 3.2.1, 4.4.1, 6.3.5, 6.3.6, 7.3.2, 8.1.4, 8.2.2, 9.1.1, 9.3.1, 9.3.2, 9.3.3, 10.3.1, 10.3.2, 11.1.1, 11.2.2	10.12.2 Negotiate to arrive at consensus by proposing and examining possible options.
1.1.1, 1.3.1, 3.2.1, 4.4.1, 6.3.5, 6.3.6, 7.3.2, 8.1.4, 8.2.2, 9.1.1, 9.3.1, 9.3.2, 9.3.3, 10.3.1, 10.3.2, 11.1.1, 11.2.2	10.12.4 Justify a position using logic and refuting opposing viewpoints.
1.1.1-15.9.10	11.12.1 Formulate cross-curricular research questions

Performance Indicators	English Language Arts Academic Standards
	and use an appropriate research design to gather information.
1.1.1-15.9.10	11.12.2 Evaluate possible sources of information for credibility and usefulness.
13.1.1	11.12.3 Cite sources of information using a standard method of documentation.
15.4.1, 15.4.2, 15.4.3, 15.4.4, 15.4.5, 15.4.6, 15.4.7, 15.4.8, 15.4.9, 15.4.10, 15.4.11, 15.4.12	11.12.5 Organize and present research findings using appropriate media.