Nevada CTE

Animal Systems (2023)

1.0: INTEGRATE CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOs) 1.0

1 1.1: Explore the History and Organization of CTSOs 1.1

1. Discuss the requirements of CTSO participation/involvement as described in Carl D. Perkins Law (Level 1 (L1), Level 2 (L2), Complementary (C)) 1.1.1
2. Research nationally recognized CTSOs (L1, L2, C) 1.1.2
3. Investigate the impact of federal and state government regarding the progression and operation of CTSOs (e.g., Federal Statutes and Regulations, Nevada Administrative Code [NAC], Nevada Revised Statutes [NRS]) (L1, L2, C) 1.1.3

2 1.2: Develop Leadership Skills 1.2

1. Discuss the purpose of parliamentary procedure (L1, L2, C) 1.2.1
2. Demonstrate the proper use of parliamentary procedure (L1, L2, C) 1.2.2
3. Differentiate between an office and a committee (L1, L2, C) 1.2.3
4. Discuss the importance of participation in local, regional, state, and national conferences, events, and competitions (L1, L2, C) 1.2.4
5. Participate in local, regional, state, or national conferences, events, or competitions (L1, L2, C) 1.2.5
6. Describe the importance of a constitution and bylaws to the operation of a CTSO chapter (L1, L2, C) 1.2.6

3 1.3: Participate in Community Service 1.3

1. Explore opportunities in community service-related work-based learning (WBL) (L1, L2, C) 1.3.1
2. Participate in a service learning (program related) and/or community service project or activity (L1, L2, C) 1.3.2
3. Engage with business and industry partners for community service (L1, L2, C) 1.3.3

4 1.4: Develop Professional and Career Skills 1.4

1. Demonstrate college and career readiness (e.g., applications, resumes, interview skills, presentation skills) (L1, L2, C) 1.4.1
2. Describe the appropriate professional/workplace attire and its importance (L1, L2, C) 1.4.2
3. Investigate industry-standard credentials/certifications available within this Career Cluster™ (L1, L2, C) 1.4.3
4. Participate in authentic contextualized instructional activities (L1, L2, C) 1.4.4

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5 Demonstrate technical skills in various student organization activities/events (L1, L2, C) 1.4.5

5 1.5: Understand the Relevance of Career and Technical Education (CTE) 1.5

1 Make a connection between program standards to career pathway(s) (L1, L2, C) 1.5.1

2 Explain the importance of participation and completion of a program of study (L1, L2, C) 1.5.2

3 Promote community awareness of local student organizations associated with CTE programs (L1, L2, C) 1.5.3

2.0: EXAMINE THE ROLE OF AGRICULTURE IN SOCIETY 2.0

1 2.1: Recognize the Role of Agriculture in Society 2.1

1 Assess how agriculture supports daily life (L1) 2.1.1

2 Describe the importance and value of global agricultural trade (L1) 2.1.2

3 Describe the various components of the agriculture industry (e.g., value chain) (L1) 2.1.3

4 Discuss the role of modern agriculture in basic human needs by identifying products used to provide food, clothing, and shelter (e.g., world food security) (L1) 2.1.4

5 Discuss the role of diverse cultures in developing American agriculture practices (L1) 2.1.5

2 2.2: Understand the History of Production Agriculture 2.2

1 Compare agriculture's role in developing civilizations (L1) 2.2.1

2 Organize the major technological developments that have occurred in agriculture (L1) 2.2.2

3 Interpret historical events and trends that have led to the development of today's agriculture industry (L1) 2.2.3

3 2.3: Explore the World Food Supply 2.3

1 Analyze the impact of agriculture on the local, state, national, and world economies (L1) 2.3.1

2 Explain the role of government in the world's food supply (L1) 2.3.2

3.0: DEVELOP LEADERSHIP AND COMMUNICATION SKILLS THROUGH PARTICIPATION IN FFA 3.0

1 3.1: Understand the History and Organization of FFA 3.1

1 Summarize how, when, and why the National FFA Organization was founded (L1) 3.1.1

2 Describe the mission and strategies, colors, motto, parts of the emblem, and organizational structure of the National FFA Organization (L1) 3.1.2

Recite and explain the meaning of the FFA Creed (L1) 3.1.3

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4 Explain the purpose of FFA's Program of Activities and describe its committee structure (L1) 3.1.4

2 3.2: Understand the Opportunities in FFA 3.2

1 Describe how FFA develops leadership skills, personal growth, and career success (L1) 3.2.1

2 Identify major state and national activities and awards available to FFA members (L1) 3.2.2

3 Compete in at least one Leadership or Career Development Event at the local level (L1) 3.2.3

3 3.3: Properly use Skills in Parliamentary Procedure 3.3

1 List three reasons why parliamentary procedure is used in meetings (L1) 3.3.1

2 List five classifications of motions (L1) 3.3.2

3 Properly perform ten procedures of parliamentary law (L1) 3.3.3

4 3.4: Understand the Importance of School and Community Awareness 3.4

1 Discuss the meaning and importance of community service and some agriculture associated organizations (L1) 3.4.1

2 Explain how FFA members can become involved in community improvement and development, and plan an activity (L1) 3.4.2

5 3.5: Recognize the Traits of Effective Leaders and Participate in 3.5

1 Leadership Training Through Involvement in FFA 3.5.1

2 Expand leadership experience by serving as a chapter officer or on a committee (L2) 3.5.2

3 Participate in a career development event at the local level or above (L2) 3.5.3

6 3.6: Understand the Importance of School and Community Awareness 3.6

1 Participate in a school improvement or community development project (L2) 3.6.1

4.0: DEVELOP A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) PROGRAM 4.0

1 4.1: Understand the Benefits of an SAE Program 4.1

1 Participate in a foundational SAE (L1) 4.1.1

2 Explore an immersion SAE (L1) 4.1.2

3 Describe the value of SAE programs (L1) 4.1.3

4 Compare and contrast the six types of SAEs (L1) 4.1.4

2 4.2: Understand the Benefits of SAE Records 4.2

1 Analyze the importance of keeping records of an SAE program (Agricultural Experience Tracker [AET©]) (L1) 4.2.1

Investigate the types of financial records needed to support a chosen SAE program (L1) 4.2.2

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3 Demonstrate the procedures for making entries in The AET© (L1) 4.2.3

4 Reflect on The AET© Annual Review (L1) 4.2.4

3 4.3: Maintain a Supervised Agricultural Experience 4.3

1 Accurately maintain SAE record books (L2) 4.3.1

2 Apply for proficiency award related to SAE program area (L2) 4.3.2

3 Actively pursue necessary steps to receive higher degrees in FFA (L2) 4.3.3

5.0: EXPLORING SCIENTIFIC INVESTIGATION IN AGRICULTURE 5.0

1 5.1: Design and Conduct Agricultural Research 5.1

1 Explain that agriculture is a science (L1) 5.1.1

2 List the steps of the scientific method (L1) 5.1.2

3 Explain the steps in conducting research in agriculture and design an appropriate research project (L1) 5.1.3

2 5.2: Understand Scientific Measurement 5.2

1 Describe the systems of measurement used in this country (L1) 5.2.1

2 Determine the metric prefixes and units used for measuring length, volume weight, temperature, and area (L1) 5.2.2

3 Convert from one system of units to another system of units (L1) 5.2.3

3 5.3: Use Laboratory Tools and Equipment 5.3

1 Identify and properly use personal protection equipment (PPE) (L1) 5.3.1

2 Describe safety in agriscience laboratories (L1) 5.3.2

3 Demonstrate proper use of common agriscience equipment (L1) 5.3.3

4 5.4: Explore Careers in Agricultural Science 5.4

1 Identify basic career information related to agricultural science (L1) 5.4.1

2 Research several agricultural science careers (L1) 5.4.2

6.0: DEVELOP AN UNDERSTANDING OF ANIMAL SCIENCE 6.0

1 6.1: Understanding Cellular Biology 6.1

1 Explain a cell's role and compare and contrast the types of cells (prokaryotic and eukaryotic) (L1) 6.1.1

2 Analyze the components of an animal cell and explain their functions (L1) 6.1.2

3 Analyze the components of a plant cell and explain their functions (L1) 6.1.3

4 Differentiate between a plant and animal cell (L1) 6.1.4

2 6.2: Explore and Evaluate the Livestock Industry 6.2

1 Define terms used to describe beef cattle, dairy, sheep, swine, and horses and identify their external parts (L1) 6.2.1

2 Compare and contrast the common breeds of livestock (L1) 6.2.2

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3 Identify and describe methods used to select different species of livestock (L1) 6.2.3

4 Evaluate livestock in a systematic, organized manner according to industry standards (L1) 6.2.4

3 6.3: Explore Reproductive Physiology and Breeding Systems 6.3

1 Compare and explain common breeding systems used in livestock production (L1) 6.3.1

4 6.4: Understand Animal Nutrition 6.4

1 Identify the major parts and describe the functions of the digestive systems in livestock (L1) 6.4.1

2 Explore the major nutrients and their importance to animals (L1) 6.4.2

5 6.5: Understand Animal Health Management 6.5

1 Measure animal health through visual and tangible observations (L1, L2) 6.5.1

2 Identify good animal health management practices (L1, L2) 6.5.2

6 6.6: Explore Careers in Animal Science 6.6

1 Identify basic career information related to animal science (L1) 6.6.1

2 Research several animal science careers (L1) 6.6.2

7.0: UNDERSTANDING PLANT SCIENCE 7.0

1 7.1: Understand Plant Anatomy 7.1

1 Identify and describe the parts of a flower (L1) 7.1.1

2 Explain the purpose of a flower (L1) 7.1.2

3 Identify and describe the parts of a root (L1) 7.1.3

4 Explain the purpose of a root (L1) 7.1.4

5 Identify and describe the parts of a stem (L1) 7.1.5

6 Explain the purpose of a stem (L1) 7.1.6

7 Identify and describe the parts of a leaf (L1) 7.1.7

8 Explain the purpose of a leaf (L1) 7.1.8

2 7.2: Understand Plant Physiology 7.2

1 Describe the process of photosynthesis (L1) 7.2.1

2 Describe the process of cellular respiration (L1) 7.2.2

3 Explain the relationship between photosynthesis and respiration (L1) 7.2.3

4 Summarize why photosynthesis and respiration are important to human beings (L1) 7.2.4

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.3: Understand Plant Propagation 7.3

1. Explain the importance of plant propagation (L1) 7.3.1
2. Explore the basic principles of crop production (food, forage, and fiber) (L1) 7.3.2
3. Identify and list the major parts of a seed (L1) 7.3.3
4. List the function of each major part of a seed (L1) 7.3.4
5. Describe and observe the process of seed germination (L1) 7.3.5
6. Describe the process of fertilization and pollination (L1) 7.3.6

4 7.4: Understand Plant Nutrition and Health 7.4

1. Differentiate between macronutrients and micronutrients (L1) 7.4.1
2. Describe pH and how it is modified (L1) 7.4.2
3. Describe the components of a fertilizer (e.g., nitrogen, phosphorus, potassium [NPK]) (L1) 7.4.3

5 7.5: Explore Careers in Plant Science 7.5

1. Identify basic career information related to plant science (L1) 7.5.1
2. Research several plant science careers (L1) 7.5.2

8.0: EXPLORING SOIL SCIENCE 8.0

1 8.1: Understand Soil Texture and Structure 8.1

1. List the components of soil (L1) 8.1.1
2. Describe the concept of soil texture and its importance (L1) 8.1.2
3. Classify the texture of a soil sample (L1) 8.1.3
4. Identify various soil structures, their formation, and importance in agriculture production (L1) 8.1.4

2 8.2: Explore Careers in Soil Science 8.2

1. Identify basic career information related to soil science (L1) 8.2.1
2. Research several soil science careers (L1) 8.2.2

9.0: EXPLORING ORNAMENTAL HORTICULTURE 9.0

1 9.1: Explore Areas of Ornamental Horticulture 9.1

1. Explore the Basic Principles of Landscape Design (L1) 9.1.1
2. Explore the Basic Principles of Greenhouse Management (L1) 9.1.2
3. Explore the Basic Principles of Floriculture (L1) 9.1.3
4. Explore the Basic Principles of Nursery Crop Production (e.g., gardening, cut flowers) (L1) 9.1.4

2 9.2: Explore Careers in Ornamental Horticulture 9.2

1. Identify basic career information related to ornamental horticulture science (L1) 9.2.1

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2 Research several ornamental horticulture science careers (e.g., landscape, greenhouse management, horticulture) (L1) 9.2.2

10.0: EXPLAIN BASIC SALES AND MARKETING CONCEPTS FOR AGRICULTURAL PRODUCTS 10.0

1 **10.1: Demonstrate an Understanding of Agricultural Marketing** 10.1
   1 Identify current agriculture product marketing trends (L1) 10.1.1
   2 Compare and contrast marketing and sales (L1) 10.1.2
   3 Define the purpose for developing a marketing plan (L1) 10.1.3

2 **10.2: Understand the Principles of Agricultural Sales** 10.2
   1 Identify the characteristics of an effective salesperson, and define related terms (L1) 10.2.1
   2 Compare and contrast the relationship between marketing and selling (L1) 10.2.2
   3 Describe the customer buying process (L1) 10.2.3
   4 Identify the six steps involved in the selling process (L1) 10.2.4

3 **10.3: Explore Careers in Sales and Marketing** 10.3
   1 Identify basic career information related to sales and marketing (L1) 10.3.1
   2 Research several sales and marketing careers (L1) 10.3.2

11.0: UNDERSTAND THE RELATIONSHIP BETWEEN AGRICULTURE AND NATURAL RESOURCE MANAGEMENT 11.0

1 **11.1: Explore Types of Natural Resources** 11.1
   1 Define and identify types of natural resources (L1) 11.1.1
   2 Distinguish between renewable and nonrenewable resources (L1) 11.1.2
   3 Compare the difference between inexhaustible and exhaustible resources (L1) 11.1.3

2 **11.2: Understand Human Demand on Natural Resources** 11.2
   1 Recognize how humans use natural resources (L1) 11.2.1
   2 Identify the urban and rural impacts of natural resource use (L1) 11.2.2
   3 Analyze the impact of recycling and reusing resources (L1) 11.2.3

3 **11.3: Comprehend Natural Resource Conservation** 11.3
   1 Compare and contrast conservation and preservation (L1) 11.3.1

4 **11.4: Understand Ecology and Ecosystems** 11.4
   1 Define ecology and ecosystems (L1) 11.4.1
   2 Explain natural selection and succession (L1) 11.4.2
   3 Identify biomes and explain ecosystem diversity (L1) 11.4.3
   4 Diagram and explain the nitrogen, phosphorus, carbon, and water cycle (L1) 11.4.4

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xplore Principles of Rangeland Management 11.5

1. Define range (L1) 11.5.1
2. Define multiple use (L1) 11.5.2
3. Identify Nevada's ecoregions (Sierra Nevada, Northern Basin and Range, Central Basin and Range, and Mojave Basin and Range) (L1) 11.5.3

6 **11.6: Explore Careers in Natural Resource Management** 11.6

1. Identify basic career information related to natural resource management (L1) 11.6.1
2. Research several natural resource management careers (L1) 11.6.2

12.0: EXPLORE THE STRUCTURE AND FUNCTION OF THE MAJOR ORGAN SYSTEMS OF LIVESTOCK 12.0

1 **12.1: Categorize the Anatomy and Physiology of Different Animal Species** 12.1

1. Describe how the animal body is organized in terms of cells, tissues, organs, and organ systems (L2) 12.1.1
2. List and briefly describe the major organ systems found in vertebrate animals (L2) 12.1.2
3. Relate anatomy and physiology to livestock and small animal production (L2) 12.1.3

2 **12.2: Examine the Anatomy and Physiology of the Musculoskeletal System** 12.2

1. Examine and describe the functions of the musculoskeletal system (L2) 12.2.1
2. Identify and recall the names of components of the musculoskeletal system found in livestock and companion animals (L2) 12.2.2

3 **12.3: Explore the Integumentary and Urinary Systems** 12.3

1. Explain the integumentary system, and diagram the two layers of skin (L2) 12.3.1
2. Identify components of the urinary system, examine its role, and explain the function of the kidneys, ureters, urinary bladder, and urethra (L2) 12.3.2

4 **12.4: Analyze the Endocrine and Nervous Systems** 12.4

1. Identify and describe the functions of the glands that compose the endocrine system (L2) 12.4.1
2. Identify and describe the functions of the organs that compose the nervous system (L2) 12.4.2
3. Describe the effect of hormones on behavior (L2) 12.4.3

5 **12.5: Examine the Circulatory and Respiratory System** 12.5

1. Identify the components of the respiratory system and describe the functions of the organs that compose the respiratory system (L2) 12.5.1
2. Identify the components of the circulatory system, including identification of all major veins and arteries, and describe the functions of the organs that compose the circulatory system (L2) 12.5.2
3. Define blood and describe the cell structure and components of blood (L2) 12.5.3

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4 Explain blood's role in the exchange of materials throughout the body (L2) 12.5.4

6 12.6: Differentiate the Major Parts of the Digestive System 12.6

1 Describe the structures and functions of a monogastric digestive system (L2) 12.6.1
2 Describe the structures and functions of a ruminant digestive system (L2) 12.6.2
3 Describe the structures and functions of a pseudo-ruminant digestive system (L2) 12.6.3
4 Investigate the differences of species based on digestive systems and diet types (L2) 12.6.4

13.0: EXPLORE NUTRITIONAL REQUIREMENTS FOR LIVESTOCK 13.0

1 13.1: Compare and Contrast Feedstuffs for Livestock 13.1

1 Explain the functions of feed and how they supply energy to livestock (L2) 13.1.1
2 Identify the various feed types and characteristics (L2) 13.1.2
3 Compare and contrast the types of feedstuffs (roughages, concentrates, supplements/additives, and byproducts) (L2) 13.1.3
4 Distinguish between good quality and poor-quality feedstuffs, and examine how processing methods (grinding, rolling, palletizing, etc.) improve palatability (L2) 13.1.4
5 Examine storage and feeding practices of common feedstuffs (L2) 13.1.5
6 Examine the role of feed additives and their impact on animal growth (L2) 13.1.6

2 13.2: Create Balanced Livestock Feed Rations 13.2

1 Identify the steps in balancing rations (L2) 13.2.1
2 Discuss the importance of feed analysis (L2) 13.2.2
3 Discuss how nutritional information is used in developing rations (L2) 13.2.3
4 Develop balanced rations using the Pearson Square method (L2) 13.2.4

14.0: EXPLORING THE LIVESTOCK REPRODUCTIVE SYSTEMS 14.0

1 14.1: Compare Anatomy and Physiology of Livestock Reproductive Systems 14.1

1 Define and explain the steps of spermatogenesis and oogenesis, and describe sperm and egg cellular characteristics (L2) 14.1.1
2 Explain the phases of reproductive development in the life of an animal, and determine an animal's readiness for breeding (L2) 14.1.2

2 14.2: Compare Natural Animal Reproduction 14.2

1 Construct a diagram of the phases of the estrous cycle and identify estrus in relation to the heat cycle (L2) 14.2.1
2 Describe the process and purpose of fertilization, the gestation length, and parturition in livestock species (L2) 14.2.2

Discuss the events that occur leading up to, during, and after parturition and describe the problems that may be encountered during parturition (L2) 14.2.3

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3 **14.3: Analyze Animal Reproduction Management** 14.3

1. Identify common reproductive diseases that affect animals and determine appropriate prevention and treatment methods (L2) 14.3.1
2. Discuss reproduction management practices, including artificial insemination and natural breeding, and determine how they affect reproductive performance (L2) 14.3.2
3. Compare and contrast common breeding systems used in livestock production (L2) 14.3.3
4. Research the advancement of reproductive technology (e.g., estrous synchronization, semen sexing, embryo transfer, cloning, and genetic engineering) (L2) 14.3.4

4 **14.4: Explain the Process of Lactation** 14.4

1. Define lactation, and describe the structure and function of the mammary glands of common agricultural animals (L2) 14.4.1
2. Describe the components of milk and colostrum and their role in newborn livestock (L2) 14.4.2
3. Examine how factors such as genetics, disease, feed, environment, and body condition affect milk production (L2) 14.4.3

15.0: EXPLORE INHERITANCE AND THE GENETIC BASIS FOR ANIMAL SELECTION 15.0

1 **15.1: Identify and Classify Various Types and Conformation of Domestic Animals** 15.1

1. Interpret performance data when evaluating livestock (L2) 15.1.1
2. Classify animals and their characteristics based on phenotype (L2) 15.1.2
3. Identify current industry standards for animal selection according to species (L2) 15.1.3
4. Classify body condition scoring system among the different species (L2) 15.1.4

2 **15.2: Explore Genetics** 15.2

1. Describe the importance of understanding genetics and recognize the impact of Gregor 15.2.1
2. Mendel's development of the basic principles of heredity (L2) 15.2.2
3. Examine the components of DNA and describe its structure (L2) 15.2.3
4. Explain the principles of dominance and incomplete dominance (L2) 15.2.4
5. Explain the results of independent assortment (L2) 15.2.5
6. Predict the genotypes and phenotypes and sex from monohybrid and dihybrid crosses by using the Punnett square (L2) 15.2.6

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1 **6.1: Analyze the Philosophies Surrounding Animal Welfare** 16.1

ISSUES IN TODAY'S SOCIETY 16.0

1. Compare and contrast animal welfare versus the concept of animal rights (L2) 16.1.1
2. Research the basis for general concerns regarding animal welfare (L2) 16.1.2

2. **16.2: Discuss Historical Events, Changing Attitudes, and Legislation Regarding Animal Use** 16.2
   1. Explore the historical events that contributed to the evolution of attitudes regarding animal usage (L2) 16.2.1
   2. Examine legislation regarding current animal usage (L2) 16.2.2

3. **16.3: Explain Controversial Practices and Cultural Differences in Animal Use** 16.3
   1. Compare and contrast current controversial issues in animal agriculture (L2) 16.3.1
   2. Distinguish between fact and propaganda when analyzing animal production issues (L2) 16.3.2
   3. Compare and contrast cultural differences and their impact on animal use (L2) 16.3.3

17.0: EVALUATE ANIMAL HEALTH 17.0

1. **17.1: Explore Animal Disease Transmission and Immunity** 17.1
   1. Describe the modes of transmission of infectious diseases (L2) 17.1.1
   2. Identify how passive and active immunity can be enhanced by management (L2) 17.1.2

2. **17.2: Classify Animal Medications** 17.2
   1. Distinguish between the two classifications of drugs (biologics and pharmaceuticals) (L2) 17.2.1
   2. Compare appropriate storage methods for medications and recognize how improper storage conditions may affect drugs (L2) 17.2.2

3. **17.3: Administer Medication and Care** 17.3
   1. Illustrate methods (topically, orally, and injected) used to administer vaccines and pharmaceuticals, including types of injections and determination of appropriate injection site(s) (L2) 17.3.1
   2. Identify the instruments (multi-dose hypodermic syringe, hypodermic syringe and needle, drench gun, balling gun) used to administer vaccines and pharmaceuticals (L2) 17.3.2
   3. Examine the components of a label found on animal medication and interpret a veterinarian's prescription (L2) 17.3.3

4. **17.4: Interpret Impact of Parasites on Animal Health** 17.4
   1. Identify common internal and external parasites that affect livestock and describe the diseases that they may spread or cause (L2) 17.4.1
   2. Diagram and describe the complete life cycle of common parasites that affect animals (L2) 17.4.2

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3 Recognize the importance of controlling parasites in disease management (L2) 17.4.3

5 17.5: Investigate Disease Control and Management Practices 17.5

1 Explain how cleanliness affects disease control and compare antiseptics and disinfectants (L2) 17.5.1

2 Evaluate vaccination and prevention methods and describe the types of vaccines available (L2) 17.5.2

3 Investigate disease control methods and their appropriate applications (e.g., antibiotics, vaccines, anthelmintic) (L2) 17.5.3

4 Evaluate vaccination and prevention methods and describe the types of vaccines available (L2) 17.5.4

5 Investigate disease control methods and their appropriate applications (e.g., antibiotics, vaccines, anthelmintic) (L2) 17.5.5

18.0: EXPLORE THE LIVESTOCK INDUSTRY 18.0

1 18.1: Explore the Beef Industry 18.1

1 Recognize the advantages and disadvantages of beef production operations (L2) 18.1.1

2 Determine the facility and equipment needs in beef production operations (L2) 18.1.2

3 Compare and contrast the types of beef-production systems and their challenges (L2) 18.1.3

4 Analyze the components and challenges of a cow-calf, backgrounding, and finishing operations and examine the factors that affect their profitability (L2) 18.1.4

5 Outline the major steps involved in processing edible and inedible products and byproducts (L2) 18.1.5

6 Discuss beneficial record-keeping programs (L2) 18.1.6

7 Describe identification practices (L2) 18.1.7

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2 **18.2: Explore the Dairy Cattle Industry** 18.2

1. Identify the leading states in dairy production operations (L2) 18.2.1
2. Recognize the advantages and disadvantages of dairy production operations (L2) 18.2.2
3. Determine the facility and equipment needs in dairy production operations (L2) 18.2.3
4. Compare and contrast the types of dairy-production systems and their challenges and analyze the components and challenges of each (L2) 18.2.4
5. Outline the major steps involved in processing edible and inedible products and byproducts (L2) 18.2.5
6. Discuss beneficial record-keeping programs (L2) 18.2.6
7. Describe identification practices (L2) 18.2.7

3 **18.3: Explore the Swine Industry** 18.3

1. Recognize the advantages and disadvantages of swine production operations (L2) 18.3.1
2. Determine the facility and equipment needs in swine production operations (L2) 18.3.2
3. Compare and contrast the types of swine-production systems and their challenges and analyze the components and challenges of each (L2) 18.3.3
4. Outline the major steps involved in processing edible and inedible products and byproducts (L2) 18.3.4
5. Discuss beneficial record-keeping programs (L2) 18.3.5
6. Describe identification practices (L2) 18.3.6

4 **18.4: Explore the Sheep and Goat Industry** 18.4

1. Recognize the advantages and disadvantages of sheep and goat production operations (L2) 18.4.1
2. Determine the facility and equipment needs in sheep and goat production operations (L2) 18.4.2
3. Compare and contrast the types of sheep and goat systems and their challenges and analyze the components and challenges of each (e.g., fiber, meat, dairy) (L2) 18.4.3
4. Outline the major steps involved in processing edible and inedible products and byproducts (L2) 18.4.4
5. Discuss beneficial record-keeping programs (L2) 18.4.5
6. Describe identification practices (L2) 18.4.6

8.5: Explore the Poultry Industry 18.5

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1. Recognize the advantages and disadvantages of the different poultry production operations (L2) 18.5.1
2. Determine the facility and equipment needs in poultry production operations (free range, housed) (L2) 18.5.2
3. Analyze the components and challenges of a poultry operations and examine the factors that affect their profitability (e.g., feathers, broiler, layer) (L2) 18.5.3
4. Compare and contrast the types of poultry production systems and their challenges (e.g., chicken, turkey, game birds, exotics) (L2) 18.5.4
5. Analyze the components and challenges of each type of poultry production (e.g., chicken, turkey, game birds, exotics) (L2) 18.5.5
6. Outline the major steps involved in processing edible and inedible products and byproducts (L2) 18.5.6
7. Discuss beneficial record-keeping programs (L2) 18.5.7

6 18.6: Explore the Equine Industry 18.6

1. Recognize the advantages and disadvantages of equine production operations (L2) 18.6.1
2. Determine the facility and equipment needs in equine production operations (L2) 18.6.2
3. Compare and contrast the types of equine production systems and their challenges and analyze the components and challenges of each (e.g., work, sport, therapy) (L2) 18.6.3
4. Discuss beneficial record-keeping programs (L2) 18.6.4
5. Describe identification practices (i.e., tattoos, branding) (L2) 18.6.5

19.0: DEVELOP A LOGICAL ARGUMENT FOR EVALUATION AND SELECTION OF ANIMALS 19.0

1 19.1: Evaluate Livestock Using Species, Breed, and Type Characteristics 19.1

1. Evaluate livestock in a systematic, organized manner according to industry standards (L2) 19.1.1
2. Evaluate livestock using EPD's and RFI's (L2) 19.1.2
3. Orally defend the selection of breeding replacement animals (L2) 19.1.3
4. Orally defend the selection of meat animals (L2) 19.1.4
5. Orally defend the selection of milk producing animals (L2) 19.1.5
6. Orally defend the selection of equine based on performance and conformation (L2) 19.1.6

20.0: EXPLORE LAND STEWARDSHIP 20.0

1 20.1: Understanding Land Stewardship Practices 20.1

1. Compare and contrast range/pasture ecosystems and their monitoring systems (L2) 20.1.1

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Compare and contrast grazing systems (L2) 20.1.2

21.0: EXAMINE MARKETING OF LIVESTOCK PRODUCTS 21.0

1 **21.1: Evaluate Different Livestock Marketing Techniques** 21.1

1. Compare and contrast video marketing versus traditional livestock sales (L2) 21.1.1
2. Compare and contrast tools and techniques for niche markets (L2) 21.1.2
3. Explain how the stock and futures markets affect the livestock industry (L2) 21.1.3
4. Develop a marketing plan for livestock or a livestock product (L2) 21.1.4

22.0: EXPLORE CAREER OPPORTUNITIES IN THE ANIMAL SCIENCE INDUSTRY 22.0

1 **22.1: Understand Employment Fields in the Animal Science Industry** 22.1

1. Research career opportunities in livestock production, pleasure and service animals, and animal science (L2) 22.1.1