Small and Large Animal Science

Topic	Skills
Unit 1: History of Animal Science	
Origin	o Articulate best-known origins of today's livestock species o Create a visual aid to teach young students where animals originated
Domestication	o Describe the process of domestication o Create an experiment to determine domestication of an animal. o Illustrate a timeline for the domestication of 7 animal species
Classification	o Explain how animals are classified in the binomial classification system o Illustrate the similarities amongst a specific genus of animals
Natural Selection	o Depict how natural selection is at work in today's animal species o Describe genetic shift and survival of the fittest
Ethics	o Define animal welfare and animal rights o Debate current ethical issues in the animal industry
Unit 2: Animal Use	
Production Methods	o Identify and categorize terms and methods of animal production o Use proper terminology for each animal species o Use proper anatomy terms to describe livestock animals
Swine	o Create a personal reference guide for recognized swine breeds in the U.S. o Identify current, industry-recognized procedures and protocols for the 5 main types of swine operations in the U.S o Demonstrate common management techniques when working with swine o Diagnose management problems based on swine behavior o Compile a comprehensive list of swine products
Beef	o Discuss the qualities that differentiate beef and dairy cattle breeds o Select beef breeds based on given scenarios o Design a management plan for different beef production facilities o Utilize breed standards to identify unknown breeds of animals o Identify and recommend uses for beef products
Dairy	o Breed Identification o Illustrate the life cycle of a milking cow o Create a model of a milking parlor to show the pros and cons of the system o Explain the usage of bull calves not selected for breeding stock o Model how raw milk is utilized in other dairy products
Equine	o Identify fundamental differences regarding light and draft horses o Complete basic health check of a horse o Properly utilize a hoof pick to prevent lameness o Design a display that shows products used from horses
Poultry	o Compare and contrast broiler vs. layer production practices o Identify breed characteristics for poultry breeds o Break down a full chicken to use in food products
Sheep	o Identify breed characteristics of sheep o Compare sheep production practices internationally o Compare lamb/mutton to beef in quality and taste

Goat Dogs Cats Rabbits/Chinchillas Pocket Pets Birds Reptiles	○ Utilize wool to create a final product ○ Identify goat breeds and their uses ○ Describe the process of dehorning ○ Research the uses of goats on a global scale ○ Use goat byproducts to make soap ○ Identify AKC recognized breeds ○ Conduct safe handling and restraint protocols ○ Identify unique adaptations to domesticated cats ○ Safely handle and restrain cats ○ Discuss unique breeding and genetics ○ Discuss care and maintenance of rabbits/chinchillas/pocket pets ○ Explain controversial use of rabbits/chinchillas ○ Research laws and regulations for maintaining a bird in captivity ○ Demonstrate safe handling and knowledge regarding birds ○ Identify at least five different species of common reptiles ○ Educate the community on common myths about reptiles ○ Differentiate amphibians from reptiles
Unit 3: Feed and Nutrition	
Essential Nutrients Feed Rations & Ingredients Nutrition Technology	○ Describe the required essential nutrients for animal health ○ Analyze each nutrient's role in growth and performance ○ Differentiate between nutritional needs of animals in different growth stages and production systems ○ Assess nutritional needs for an animal based on growth and production factors ○ Identify common feed ingredients for each species previously covered ○ Calculate feed rations to provide a balanced nutritional plan ○ Discuss the importance of TMR-Total Mixed Rations in feeding operations ○ Examine the use of technology to provide animal nutrition ○ Analyze technologies used to provide animal nutrition ○ Summarize technologies benefits and consequences ○ Conduct case study to improve animal nutrition
Unit 4: Breeding & Reproduction	
Life Cycle Genetic Inheritance	○ Identify male and female reproductive organs ○ Categorize male and female reproductive organs of the major animal species ○ Compare and contrast how factors affect the reproductive efficiency of animals ○ Summarize the importance of efficient and economic reproduction in animals. ○ Evaluate reproductive problems that occur in animals ○ Summarize genetic inheritance in animals. ○ Compare and contrast the use of genetically superior animals in the production of animals and animal products. ○ Select and evaluate a breeding system based on the principles of genetics. ○ Identify and summarize inheritance and terms related to inheritance in animal breeding.

	○ Demonstrate how to determine probability trait inheritance in animals.
Unit 5: Housing and Regulations	
Housing Regulations	○ Design animal housing, equipment, and handling facilities for the major systems of animal production. ○ Assess the safety and effectiveness of facilities and equipment ○ Comply with government regulations and safety standards for facilities used in animal production.
Unit 6: Anatomy and Physiology	
Anatomy Physiology	○ Classify, evaluate, and select animals based on anatomical and physiological characteristics. ○ Apply principles of comparative anatomy and physiology to uses within various animal systems. ○ Select and train animals for specific purposes and maximum performance based on anatomy and physiology.
Unit 7: Animal Health and Diseases	
Biosecurity Diseases	○ Analyze biosecurity measures utilized to protect the welfare of animals on a local, state, national, and global level. ○ Analyze the health risk of different zoonotic diseases to humans and identify prevention methods.
Unit 8: Animal Agriculture & the Environment	
	○ Analyze environmental factors associated with animal production. ○ Assess the effectiveness of methods of reducing the effects of animal agriculture and the environment. ○ Devise a plan that includes measures to reduce the impact of animal agriculture on the environment.
Unit 9: Animal Careers and Final Project	
Careers	○ Describe common characteristics of people working in the animal industry ○ Research different careers in the animal industry ○ Interact with current employees in the animal industry ○ Create a final presentation on one career and the education required