

Course Title:	Production Animal Science
Grade(s):	11th/12th

Course Description
This course will focus on the production of animal agriculture. Students will learn the breeds, care, management, and business implications of production animal science. Students will have “hands-on” opportunities in the large animal facility, laboratory, and on farm sites.
Approved Curricular Materials/Textbook(s)
Livestock & Poultry Production

Unit Title	Unit Description (Include Unit Objectives)	Unit Pacing
Unit 1: SAE Capstone	This unit starts all second-semester agriscience courses. Students present their SAE capstone presentations in class to share with their peers. This is a requirement of the agriscience program each year and provides scaffolding to have 12th graders present their final SAE Capstone presentation in their final year. Students will: • Use effective communication skills to present what their SAE was and the skills that they gained throughout the project • Be engaged listeners to their peers and ask content-specific questions based on each student's presentation	1 Week
Unit 2: Introduction to Production Animal Science	In this unit, students will be introduced to the production animal science industry. Various career opportunities will be investigated, and students will also be analyzing top production states and countries for various production animals. Additionally, advanced animal terminology and animal welfare are discussed. This course also involves working in the large animal facility, and therefore, students	2 Weeks

	will learn about proper safety when handling livestock and biosecurity measures to ensure human and animal health. Students will: • Determine ethical options to form an opinion on the use of meat for human consumption and related environmental impact issues • Assess their personal values to determine their beliefs about animal use • Recognize issues in animal agriculture and discuss the positive and negative impacts of each issue • Analyze animal rights and animal welfare videos to determine the message and intent of each video • Compare domestic and wild animals using characteristics of domestication • Design a timeline recording the history of an animal • Examine the development and domestication of a common animal over time • Develop a dichotomous key for five breeds of an animal	
Unit 3: Animal Digestive Systems	In this unit, the major types of animal digestive systems will be discussed, including monogastric, ruminant, pseudo-ruminant, and avian. Students will work through identifying the various parts of each digestive system and how the systems are similar and different. Additionally, students will gain an understanding of how each digestive system allows the animal to eat a specific diet and how this affects growth and development. Students will: • Identify monogastric, ruminant, pseudo-ruminant, and avian digestive systems • Describe the process of rumination and digestion • Describe why livestock animals can eat feeds that humans cannot • Research and identify the six essential nutrients and the functions of each • Classify feedstuffs according to their nutrient value • Define the terminology commonly used in digestive anatomy • Match livestock species with the proper digestive system • Label, identify, and explain the function of various parts of animal digestive systems • Build a model of a digestive system	2 Weeks

Unit 4: Feed & Nutrition	This unit investigates different types of animal feeds and forages and how livestock animals utilize these feeds for different types of production systems. Students will learn to identify different types of feeds commonly used in the industry and what nutrients are found in those feeds. Additionally, students will analyze how to mix feed rations to optimize animal health and production. Students will also discuss animal nutritional needs at different stages of life (young, pregnant, lactating, and growth). Students will: • Read and analyze a feed label and understand how that feed is utilized to create an appropriate feed ration for a livestock animal • Identify common feedstuffs and discuss what each feedstuff adds to the diet of a livestock animal • Develop a nutritional plan for an animal based on the stage of life and production goals	2 Weeks
Unit 5: Dairy Production	In this unit, students will investigate the dairy industry and dive further into all aspects of dairy production. Students will learn about the dairy cattle production cycle from calf to milker and will investigate the various types of milking systems. Common procedures, vaccinations, and diseases will also be addressed. Additionally, students will learn about the milking process and will determine the best practices needed during milking to ensure food-safe milk. Students will also learn about the different types of milk products that are produced. Students will: • Identify types of milking systems and the advantages/disadvantages of each • Perform the proper method of milking that will ensure the health of the cow as well as safe milk products • Describe the lifecycle of a cow (from calf to milker) and the inputs and facilities needed • Identify common vaccinations/procedures that take place in the dairy industry • Evaluate common diseases that are found in the dairy industry and recommend treatment	1 Week

Unit 6: Beef Production	In this unit, students will investigate the beef industry and how producers ensure high-quality and safe animal handling. Students will perform livestock evaluation in order to gain a greater understanding of beef animal selection for both genetic merit and beef production. Additionally, students will research the difference in beef production facilities (stockyard, pasture-fed, etc.). Beef anatomy, as well as cuts of beef, will be briefly discussed in order to better understand the development of the animal for consumer use. Students will: • Describe the lifecycle of a beef animal and the common procedures that are utilized for animal health • Evaluate beef animals based on both breeding and market qualities • Differentiate between beef production systems and can define commonly used terminology associated with the beef industry (grass-fed, pasture-raised)	1 Week
Unit 7: Sheep Production	In this unit, students will investigate the sheep industry and how producers ensure high-quality and safe animal handling. Students will perform livestock evaluation in order to gain a greater understanding of sheep selection for both genetic merit, wool quality, and market production. Additionally, students will research the difference in sheep production facilities (stockyard, pasture-fed, etc.). Sheep anatomy as well as wool processing will be discussed. Students will: • Describe the lifecycle of a sheep and the common procedures that are utilized for animal health • Evaluate sheep based on both breeding and market qualities • Differentiate between sheep production systems, and describe wool processing	1 Week
Unit 8: Goat Production	In this unit, students will investigate the goat industry and how producers ensure high-quality and safe animal handling. Students will perform livestock evaluation in order to gain a greater understanding of goat selection for both genetic merit, dairy production, and market production. Additionally, students will research the difference in goat production facilities based on the type of production. Goat anatomy as well as dairy goat milk processing will be discussed.	1 Week

	Students will: • Describe the lifecycle of a goat and the common procedures that are utilized for animal health • Evaluate goats based on both breeding and market qualities. • Differentiate between goat production systems and describe the milking process for dairy goats	
Unit 9: Poultry Production	In this unit, students will investigate the poultry industry and how producers ensure high-quality and safe animal handling. Students will perform poultry evaluation in order to gain a greater understanding of poultry selection for both genetic merit, egg production, and meat production. Additionally, students will research the difference in poultry production facilities (caged, free-range, confined housing). Poultry anatomy as well as egg grading will be discussed. Students will: • Describe the lifecycle of a chicken and the common procedures that are utilized for animal health • Evaluate poultry based on both breeding and market qualities • Differentiate between poultry production systems and describe the egg and meat processing process	1 Week
Unit 10: Livestock Facility Management	In this unit, students will develop an understanding of the aspects needed in developing a safe, healthy livestock facility. Animal handling systems, animal separation, age grouping, feed management, and appropriate space will be discussed and analyzed. Students will: • Design a facility that meets industry standards of animal welfare, health, safety, and functionality • Identify key components to developing an efficient and effective livestock facility	2 Weeks