Subject	Chapter 130. Career and Technical Education			
Course Title	§130.7. Advanced Animal Science (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(a) General requirements. This course is recommended for students in Grade 12. Recommended prerequisite: a minimum of one credit from the courses in the Agriculture, Food, and Natural Resources cluster. To receive credit in science, students must meet the 40% laboratory and fieldwork requirement identified in §74.3(b)(2)(C) of this title (relating to Description of a Required Secondary Curriculum).				
(b) Introduction.				
(1) Advanced Animal Science. To be prepared for careers in the field of animal science, students need to attain academic skills and knowledge, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry standards. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings. This course examines the interrelatedness of human, scientific, and technological dimensions of livestock production. Instruction is designed to allow for the application of scientific and technological aspects of animal science through field and laboratory experiences.				
(2) Nature of science. Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.				
(3) Scientific inquiry. Scientific inquiry is the planned and deliberate investigation of the natural world. Scientific methods of investigation are experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked.				
(4) Science and social ethics. Scientific decision making is a way of answering questions about the natural world. Students should be able to distinguish between scientific decision-making methods (scientific methods) and ethical and social decisions that involve science (the application of scientific information).				
(5) Science, systems, and models. A system is a collection of cycles, structures, and processes that interact. All systems have basic properties that can be described in space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment.				

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(c) Knowledge and Skills.				
(1) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:	(A) demonstrate safe practices during field and laboratory investigations	(1) demonstrate safe practices during field investigations		
(1) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:	(A) demonstrate safe practices during field and laboratory investigations	(2) demonstrate safe practices during laboratory investigations		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(1) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(1) demonstrate an understanding of the use of resources		
(1) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(2) demonstrate an understanding of the conservation of resources		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(1) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(3) demonstrate an understanding of the proper disposal or recycling of materials		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section			
(2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(1) know that scientific hypotheses are tentative statements that must be capable of being supported or not supported by observational evidence		

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(2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(2) know that scientific hypotheses are testable statements that must be capable of being supported or not supported by observational evidence		
(2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(3) [know that] Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories		
(2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	(C) know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(1) know scientific theories are based on natural phenomena		

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(2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	(C) know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(2) know scientific theories are based on physical phenomena		
(2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	(C) know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(3) know scientific theories are capable of being tested by multiple independent researchers		
(2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	(C) know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(4) [know that] Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed		

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(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(D) distinguish between scientific hypotheses and scientific theories			
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	1) plan descriptive investigations, including asking questions		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(2) plan descriptive investigations, including formulating testable hypotheses		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(3) plan descriptive investigations, including selecting equipment		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(4) plan descriptive investigations, including selecting technology		

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(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(5) plan comparative investigations, including asking questions		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(6) plan comparative investigations, including formulating testable hypotheses		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(7) plan comparative investigations, including selecting equipment		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(8) plan comparative investigations, including selecting technology		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(9) plan experimental investigations, including asking questions		

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(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(10) plan experimental investigations, including formulating testable hypotheses		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(11) plan experimental investigations, including selecting equipment		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(12) plan experimental investigations, including selecting technology		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(13) implement descriptive investigations, including asking questions		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(14) implement descriptive investigations, including formulating testable hypotheses		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(15) implement descriptive investigations, including selecting equipment		

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(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(16) implement descriptive investigations, including selecting technology		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(17) implement comparative investigations, including asking questions		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(18) implement comparative investigations, including formulating testable hypotheses		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(19) implement comparative investigations, including selecting equipment		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(20) implement comparative investigations, including selecting technology		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(21) implement experimental investigations, including asking questions		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(22) implement experimental investigations, including formulating testable hypotheses		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(23) implement experimental investigations, including selecting equipment		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology	(24) implement experimental investigations, including selecting technology		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(1) collect qualitative data		

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(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(2) collect quantitative data		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(3) organize qualitative data		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(4) organize quantitative data		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(5) make measurements with accuracy using tools		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(6) make measurements with accuracy using equipment		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(7) make measurements with precision using tools		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools and equipment	(8) make measurements with precision using equipment		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(G) analyze, evaluate, make inferences, and predict trends from data	(1) analyze trends from data		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(G) analyze, evaluate, make inferences, and predict trends from data	(2) evaluate trends from data		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(G) analyze, evaluate, make inferences, and predict trends from data	(3) make inferences from data		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(G) analyze, evaluate, make inferences, and predict trends from data	(4) predict trends from data		
(2) The student uses scientific methods and equipment during field and laboratory investigations. The student is expected to:	(H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports	(1) communicate valid conclusions supported by the data		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(1) in all fields of science, analyze scientific explanations by using empirical evidence, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	2) in all fields of science, analyze scientific explanations by using logical reasoning, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(3) in all fields of science, analyze scientific explanations by using experimental testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		

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(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(4) in all fields of science, analyze scientific explanations by using observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(5) in all fields of science, evaluate scientific explanations by using empirical evidence, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(6) in all fields of science, evaluate scientific explanations by using logical reasoning, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		

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(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(7) in all fields of science, evaluate scientific explanations by using experimental testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(8) in all fields of science, evaluate scientific explanations by using observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(9) in all fields of science, critique scientific explanations by using empirical evidence, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(10) in all fields of science, critique scientific explanations by using logical reasoning, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(11) in all fields of science, critique scientific explanations by using experimental testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	(12) in all fields of science, critique scientific explanations by using observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(1) communicate scientific information extracted from various sources		

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(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(2) apply scientific information extracted from various sources		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(C) draw inferences based on data related to promotional materials for products and services	(1) draw inferences based on data related to promotional materials for products		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(C) draw inferences based on data related to promotional materials for products and services	(2) draw inferences based on data related to promotional materials for services		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(D) evaluate the impact of scientific research on society and the environment	(1) evaluate the impact of scientific research on society		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(D) evaluate the impact of scientific research on society and the environment	(2) evaluate the impact of scientific research on the environment		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(E) evaluate models according to their limitations in representing biological objects or events			

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(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(F) research and describe the history of science and contributions of scientists	(1) research the history of science		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(F) research and describe the history of science and contributions of scientists	(2) research the contributions of scientists		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(F) research and describe the history of science and contributions of scientists	(3) describe the history of science		
(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	(F) research and describe the history of science and contributions of scientists	(4) describe the contributions of scientists		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(A) identify career development and entrepreneurship opportunities in the field of animal systems	(1) identify career development opportunities in the field of animal systems		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(A) identify career development and entrepreneurship opportunities in the field of animal systems	(2) identify entrepreneurship opportunities in the field of animal systems		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(B) apply competencies related to resources, information, interpersonal skills, and systems of operation in animal systems	(1) apply competencies related to resources in animal systems		

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(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(B) apply competencies related to resources, information, interpersonal skills, and systems of operation in animal systems	(2) apply competencies related to information in animal systems		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(B) apply competencies related to resources, information, interpersonal skills, and systems of operation in animal systems	(3) apply competencies related to interpersonal skills in animal systems		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(B) apply competencies related to resources, information, interpersonal skills, and systems of operation in animal systems	(4) apply competencies related to systems of operation in animal systems		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(C) demonstrate knowledge of personal and occupational safety and health practices in the workplace	(1) demonstrate knowledge of personal safety in the workplace		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(C) demonstrate knowledge of personal and occupational safety and health practices in the workplace	(2) demonstrate knowledge of occupational safety in the workplace		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(C) demonstrate knowledge of personal and occupational safety and health practices in the workplace	(3) demonstrate knowledge of health practices in the workplace		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(D) identify employers' expectations, including appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills	(1) identify employers' expectations, including appropriate work habits		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(D) identify employers' expectations, including appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills	(2) identify employers' expectations, including ethical conduct		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(D) identify employers' expectations, including appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills	(3) identify employers' expectations, including legal responsibilities		
(4) The student evaluates the employability characteristics of an employee. The student is expected to:	(D) identify employers' expectations, including appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills	(4) identify employers' expectations, including good citizenship skills		
(5) The student demonstrates principles relating to the human, scientific, and technological dimensions of scientific animal agriculture and the resources necessary for producing domesticated animals. The student is expected to:	(A) evaluate market classes and grades of livestock	(1) evaluate market classes of livestock		

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(5) The student demonstrates principles relating to the human, scientific, and technological dimensions of scientific animal agriculture and the resources necessary for producing domesticated animals. The student is expected to:	(A) evaluate market classes and grades of livestock	(2) evaluate grades of livestock		
(5) The student demonstrates principles relating to the human, scientific, and technological dimensions of scientific animal agriculture and the resources necessary for producing domesticated animals. The student is expected to:	(B) identify animal products and consumption patterns relative to human diet and health issues	(1) identify animal products relative to human diet		
(5) The student demonstrates principles relating to the human, scientific, and technological dimensions of scientific animal agriculture and the resources necessary for producing domesticated animals. The student is expected to:	(B) identify animal products and consumption patterns relative to human diet and health issues	(2) identify animal products relative to health issues		
(5) The student demonstrates principles relating to the human, scientific, and technological dimensions of scientific animal agriculture and the resources necessary for producing domesticated animals. The student is expected to:	(B) identify animal products and consumption patterns relative to human diet and health issues	(3) identify consumption patterns relative to human diet		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(5) The student demonstrates principles relating to the human, scientific, and technological dimensions of scientific animal agriculture and the resources necessary for producing domesticated animals. The student is expected to:	(B) identify animal products and consumption patterns relative to human diet and health issues	(4) identify consumption patterns relative to health issues		
(5) The student demonstrates principles relating to the human, scientific, and technological dimensions of scientific animal agriculture and the resources necessary for producing domesticated animals. The student is expected to:	(C) describe the growth and development of livestock as a global commodity			
(6) The student applies the principles of reproduction and breeding to livestock improvement. The student is expected to	(A) describe reproductive cycles and relate them to breeding systems	(1) describe reproductive cycles		
(6) The student applies the principles of reproduction and breeding to livestock improvement. The student is expected to:	(A) describe reproductive cycles and relate them to breeding systems	(2) relate [reproductive cycles] to breeding systems		
(6) The student applies the principles of reproduction and breeding to livestock improvement. The student is expected to:	(B) explain the embryo transfer process and how it can impact the livestock industries	(1) explain the embryo transfer process		

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(6) The student applies the principles of reproduction and breeding to livestock improvement. The student is expected to:	(B) explain the embryo transfer process and how it can impact the livestock industries	(2) explain how the [embryo transfer process] can impact the livestock industries		
(6) The student applies the principles of reproduction and breeding to livestock improvement. The student is expected to	(C) recognize the significance of meiosis to sexual reproduction			
(6) The student applies the principles of reproduction and breeding to livestock improvement. The student is expected to:	(D) evaluate animal behavior and its relationship to livestock management	(1) evaluate animal behavior		
(6) The student applies the principles of reproduction and breeding to livestock improvement. The student is expected to:	(D) evaluate animal behavior and its relationship to livestock management	(2) evaluate [the] relationship [of animal behavior] to livestock management		
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(A) explain Mendel's laws of inheritance by predicting genotypes and phenotypes of offspring using the Punnett square	(1) explain Mendel's laws of inheritance by predicting genotypes of offspring using the Punnett square		
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(A) explain Mendel's laws of inheritance by predicting genotypes and phenotypes of offspring using the Punnett square	(2) explain Mendel's laws of inheritance by predicting phenotypes of offspring using the Punnett square		
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(B) explain the inheritance of sex-linked characteristics and provide some examples found in animals	(1) explain the inheritance of sex-linked characteristics found in animals		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(B) explain the inheritance of sex-linked characteristics and provide some examples found in animals	(2) provide some examples [of sex-linked characteristics] found in animals		
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(C) identify and compare the three parts of nucleic acids	(1) identify the three parts of nucleic acids		
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(C) identify and compare the three parts of nucleic acids	(2) compare the three parts of nucleic acids		
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(D) explain the functions of nucleic acids			
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(E) describe how heredity is used in the selection of livestock			
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(F) explain how traits are passed from parent to offspring through genetic transfer and the implications of breeding practices	(1) explain how traits are passed from parent to offspring through genetic transfer		
(7) The student applies the principles of molecular genetics and heredity. The student is expected to:	(F) explain how traits are passed from parent to offspring through genetic transfer and the implications of breeding practices	(2) explain the implications of breeding practices		

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(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(A) identify and compare the external anatomy of a variety of livestock species	(1) identify the external anatomy of a variety of livestock species		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(A) identify and compare the external anatomy of a variety of livestock species	(2) compare the external anatomy of a variety of livestock species		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(1) compare the anatomy of the skeletal systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(2) compare the anatomy of the muscular systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(3) compare the anatomy of the reproductive systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(4) compare the anatomy of the digestive systems of animals		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(5) compare the anatomy of the circulatory systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(6) compare the anatomy of the genitourinary systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(7) compare the anatomy of the respiratory systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(8) compare the anatomy of the nervous systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(9) compare the anatomy of the endocrine systems of animals		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(10) compare the physiology of the skeletal systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(11) compare the physiology of the muscular systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(12) compare the physiology of the reproductive systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(13) compare the physiology of the digestive systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(14) compare the physiology of the circulatory systems of animals		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(15) compare the physiology of the genitourinary systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(16) compare the physiology of the respiratory systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(17) compare the physiology of the nervous systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(B) compare the anatomy and physiology of the skeletal, muscular, reproductive, digestive, circulatory, genito-urinary, respiratory, nervous, and endocrine systems of animals	(18) compare the physiology of the endocrine systems of animals		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(C) describe interactions among various body systems such as circulatory, respiratory, and muscular systems	(1) describe interactions among various body systems		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(1) identify the functions of epithelial tissue		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(2) identify the functions of connective tissue		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(3) identify the functions of muscular tissue		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(4) describe the functions of epithelial tissue		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(5) describe the functions of connective tissue		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(6) describe the functions of muscular tissue		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(7) relate [the functions of epithelial tissue] to animal body systems		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(8) relate [the functions of connective tissue] to animal body systems		
(8) The student examines and compares animal anatomy and physiology in livestock species. The student is expected to:	(D) identify and describe the functions of epithelial, connective, and muscular tissue and relate these to animal body systems	(9) relate [the functions of muscular tissue] to animal body systems		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(A) describe the structures and functions of the digestive system of ruminant and non-ruminant animals, including poultry and cattle	(1) describe the structures of the digestive system of ruminant animals, including poultry		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(A) describe the structures and functions of the digestive system of ruminant and non-ruminant animals, including poultry and cattle	(2) describe the structures of the digestive system of non-ruminant animals, including cattle		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(A) describe the structures and functions of the digestive system of ruminant and non-ruminant animals, including poultry and cattle	(3) describe the functions of the digestive system of ruminant animals, including poultry		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(A) describe the structures and functions of the digestive system of ruminant and non-ruminant animals, including poultry and cattle	(4) describe the functions of the digestive system of non-ruminant animals, including cattle		

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(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(1) identify sources of nutrients		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(2) identify classes of feeds		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(3) describe sources of nutrients		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(4) describe classes of feeds		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(5) relate [the sources of nutrients] to the ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(6) relate [the sources of nutrients] to the non-ruminant animals		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(7) relate [the classes of feeds] to the ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(B) identify and describe sources of nutrients and classes of feeds and relate to the ruminant and non-ruminant animals	(8) relate [the classes of feeds] to the non-ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(1) identify vitamins		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(2) identify how [vitamins] relate to the nutritional requirements of ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(3) identify how [vitamins] relate to the nutritional requirements of non-ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(4) identify minerals		

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(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(5) identify how [minerals] relate to the nutritional requirements of ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(6) identify how [minerals] relate to the nutritional requirements of non-ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(7) identify feed additives		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(8) identify how [feed additives] relate to the nutritional requirements of ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(9) identify how [feed additives] relate to the nutritional requirements of non-ruminant animals		

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(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(10) describe vitamins		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(11) describe how [vitamins] relate to the nutritional requirements of ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(12) describe how [vitamins] relate to the nutritional requirements of non-ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(13) describe minerals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(14) describe how [minerals] relate to the nutritional requirements of ruminant animals		

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(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(15) describe how [minerals] relate to the nutritional requirements of non-ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(16) describe feed additives		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(17) describe how [feed additives] relate to the nutritional requirements of ruminant animals		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(C) identify and describe vitamins, minerals, and feed additives and how they relate to the nutritional requirements of ruminant and non-ruminant animals	(18) describe how [feed additives] relate to the nutritional requirements of non-ruminant animals		

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(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(D) formulate rations based on different nutritional requirements			
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(E) analyze feeding practices in relation to nutritional requirements of animals			
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(F) analyze feed quality issues and determine their effect on animal health	(1) analyze feed quality issues		
(9) The student determines nutritional requirements of ruminant and non-ruminant animals. The student is expected to:	(F) analyze feed quality issues and determine their effect on animal health	(2) determine [feed quality issues] effect on animal health		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(A) identify factors that influence the health of animals such as geographic location, age, genetic composition, and inherited diseases to a particular species	(1) identify factors that influence the health of animals		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(B) identify pathogens and describe the effects that diseases have on various body systems	(1) identify pathogens		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(B) identify pathogens and describe the effects that diseases have on various body systems	(2) describe the effects that diseases have on various body systems		

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(10) The student evaluates animal diseases and parasites. The student is expected to:	(C) explain the methods of prevention, control, and treatment for diseases	(1) explain the methods of prevention for diseases		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(C) explain the methods of prevention, control, and treatment for diseases	(2) explain the methods of control for diseases		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(C) explain the methods of prevention, control, and treatment for diseases	(3) explain the methods of treatment for diseases		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(D) describe the process of immunity and disease transmission	(1) describe the process of immunity		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(D) describe the process of immunity and disease transmission	(2) describe the process of disease transmission		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(E) explain how parasites are transmitted and the effect they have on the host	(1) explain how parasites are transmitted		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(E) explain how parasites are transmitted and the effect they have on the host	(2) explain the effect [parasites] have on the host		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(F) explain the methods of prevention, control, and treatment of internal and external parasites	(1) explain the methods of prevention of internal parasites		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(10) The student evaluates animal diseases and parasites. The student is expected to:	(F) explain the methods of prevention, control, and treatment of internal and external parasites	(2) explain the methods of prevention of external parasites		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(F) explain the methods of prevention, control, and treatment of internal and external parasites	(3) explain the methods of control of internal parasites		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(F) explain the methods of prevention, control, and treatment of internal and external parasites	(4) explain the methods of control of external parasites		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(F) explain the methods of prevention, control, and treatment of internal and external parasites	(5) explain the methods of treatment of internal parasites		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(F) explain the methods of prevention, control, and treatment of internal and external parasites	(6) explain the methods of treatment of external parasites		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(G) describe the life cycles of various parasites and relate them to animal health issues	(1) describe the life cycles of various parasites		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(G) describe the life cycles of various parasites and relate them to animal health issues	(2) relate the [life cycles of various parasites] to animal health issues		
(10) The student evaluates animal diseases and parasites. The student is expected to:	(H) conduct parasite diagnostic tests			

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(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(A) compare cells from different parts of animals, including epithelia, muscles, and bones, to show specialization of structure and function	(1) compare cells from different parts of animals, including epithelia to show specialization of structure		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(A) compare cells from different parts of animals, including epithelia, muscles, and bones, to show specialization of structure and function	(2) compare cells from different parts of animals, including epithelia to show specialization of function		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(A) compare cells from different parts of animals, including epithelia, muscles, and bones, to show specialization of structure and function	(3) compare cells from different parts of animals, including muscles to show specialization of structure		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(A) compare cells from different parts of animals, including epithelia, muscles, and bones, to show specialization of structure and function	(4) compare cells from different parts of animals, including muscles to show specialization of function		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(A) compare cells from different parts of animals, including epithelia, muscles, and bones, to show specialization of structure and function	(5) compare cells from different parts of animals, including bones to show specialization of structure		

Subject	Chapter 130. Career and Technical Education			
Course Title	§130.7. Advanced Animal Science (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(A) compare cells from different parts of animals, including epithelia, muscles, and bones, to show specialization of structure and function	(6) compare cells from different parts of animals, including bones to show specialization of function		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(B) describe and explain cell differentiation in the development of organisms	(1) describe cell differentiation in the development of organisms		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(B) describe and explain cell differentiation in the development of organisms	(2) explain cell differentiation in the development of organisms		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(C) sequence the levels of organization in animals and relate the parts to each other and to the whole	(1) sequence the levels of organization in animals		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(C) sequence the levels of organization in animals and relate the parts to each other and to the whole	(2) relate the parts [of organization in animals] to each other		
(11) The student defines how an organism grows and how specialized cells, tissues, and organs develop. The student is expected to:	(C) sequence the levels of organization in animals and relate the parts to each other and to the whole	(3) relate the parts [of organization in animals] to the whole		

Subject	Chapter 130. Career and Technical Education			
Course Title	§130.7. Advanced Animal Science (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(12) The student recognizes policies and issues in animal science. The student is expected to:	(A) discuss the impacts of biotechnology on the production of livestock such as cloning, artificial insemination, and freezing of semen and embryos	(1) discuss the impacts of biotechnology on the production of livestock		
(12) The student recognizes policies and issues in animal science. The student is expected to:	(B) analyze the issues surrounding animal welfare and the humane treatment of livestock	(1) analyze the issues surrounding animal welfare		
(12) The student recognizes policies and issues in animal science. The student is expected to:	(B) analyze the issues surrounding animal welfare and the humane treatment of livestock	(2) analyze the issues surrounding the humane treatment of livestock		
(12) The student recognizes policies and issues in animal science. The student is expected to:	(C) apply principles of nutrition to maximize feed efficiency for livestock			
(12) The student recognizes policies and issues in animal science. The student is expected to:	(D) design, conduct, and complete research to solve a self-identified problem in scientific animal agriculture	(1) design research to solve a self-identified problem in scientific animal agriculture		
(12) The student recognizes policies and issues in animal science. The student is expected to:	(D) design, conduct, and complete research to solve a self-identified problem in scientific animal agriculture	(2) conduct research to solve a self-identified problem in scientific animal agriculture		
(12) The student recognizes policies and issues in animal science. The student is expected to:	(D) design, conduct, and complete research to solve a self-identified problem in scientific animal agriculture	(3) complete research to solve a self-identified problem in scientific animal agriculture		

Subject	Chapter 130. Career and Technical Education			
Course Title	§130.7. Advanced Animal Science (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(13) The student discusses livestock harvesting operations. The student is expected to:	(A) map the stages of animal growth and development as it relates to market readiness			
(13) The student discusses livestock harvesting operations. The student is expected to:	(B) describe the harvesting process			
(13) The student discusses livestock harvesting operations. The student is expected to:	(C) describe federal and state meat inspection standards such as safety, hygiene, and quality control	(1) describe federal meat inspection standards		
(13) The student discusses livestock harvesting operations. The student is expected to:	(C) describe federal and state meat inspection standards such as safety, hygiene, and quality control	(2) describe state meat inspection standards		
(13) The student discusses livestock harvesting operations. The student is expected to:	(D) identify retail and wholesale cuts of meat and meat by-products and correlate to major muscle groups	(1) identify retail cuts of meat		
(13) The student discusses livestock harvesting operations. The student is expected to:	(D) identify retail and wholesale cuts of meat and meat by-products and correlate to major muscle groups	(2) identify wholesale cuts of meat		
(13) The student discusses livestock harvesting operations. The student is expected to:	(D) identify retail and wholesale cuts of meat and meat by-products and correlate to major muscle groups	(3) identify meat by-products		

Subject	Chapter 130. Career and Technical Education			
Course Title	§130.7. Advanced Animal Science (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(13) The student discusses livestock harvesting operations. The student is expected to:	(D) identify retail and wholesale cuts of meat and meat by-products and correlate to major muscle groups	(4) correlate [retail cuts of meat] to major muscle groups		
(13) The student discusses livestock harvesting operations. The student is expected to:	(D) identify retail and wholesale cuts of meat and meat by-products and correlate to major muscle groups	(5) correlate [wholesale cuts of meat] to major muscle groups		
(13) The student discusses livestock harvesting operations. The student is expected to:	(D) identify retail and wholesale cuts of meat and meat by-products and correlate to major muscle groups	(6) correlate [meat by-products] to major muscle groups		
(14) The student explores methods of marketing livestock. The student is expected to:	(A) compare various methods of marketing livestock			
(14) The student explores methods of marketing livestock. The student is expected to:	(B) describe methods of marketing meat and meat products	(1) describe methods of marketing meat		
(14) The student explores methods of marketing livestock. The student is expected to:	(B) describe methods of marketing meat and meat products	(2) describe methods of marketing meat products		

Subject	Chapter 130. Career and Technical Education			
Course Title	§130.7. Advanced Animal Science (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(A) plan, propose, conduct, and evaluate entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity	(1) plan entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity		
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(A) plan, propose, conduct, and evaluate entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity	(2) propose entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity		
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(A) plan, propose, conduct, and evaluate entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity	(3) conduct entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(A) plan, propose, conduct, and evaluate entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity	(4) evaluate entrepreneurship; placement; exploratory; research, either experimental or analytical; improvement; supplementary; laboratory-based; or other identified, supervised agricultural experience as an experiential learning activity		
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(B) apply proper record-keeping skills as they relate to a supervised experience			
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(C) design and use a customized record-keeping system for the individual supervised experience	(1) design a customized record-keeping system for the individual supervised experience		
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(C) design and use a customized record-keeping system for the individual supervised experience	(2) use a customized record-keeping system for the individual supervised experience		

Subject	Chapter 130. Career and Technical Education			
Course Title	§130.7. Advanced Animal Science (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(D) participate in youth leadership opportunities to create a well-rounded experience program in agriculture			
(15) The student develops an advanced supervised agriculture experience program as it relates to agriculture, food, and natural resources. The student is expected to:	(E) produce a challenging approach for a local program of activities in agriculture			