# Scope & Sequence

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| Course Name: Wildlife, Fisheries and Ecology Management **TSDS PEIMS Code:** 13001500 | | | **Course Credit:** 1.0  **Course Requirements:** grades 9-12.  **Prerequisites:** None. |
| **Course Description:** Wildlife, Fisheries, and Ecology Management examines the management of game and non-game wildlife species, fish, and aqua crops and their ecological needs as related to current agricultural practices. To prepare for success, students need opportunities. | | | |
| **NOTE:** This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered. | | | |
| **Total Number of Periods**  **Total Number of Minutes**  **Total Number of Hours** | 175 periods  7,875 minutes  131.25 hours\* | \*Schedule calculations based on 175/180 calendar days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc. | |
| **Unit Number, Title, and Brief Description** | **# of Class Periods\***  (assumes 45-minute periods)  Total minutes per unite | **TEKS Covered**  **130.17 Knowledge and skills** | |
| **Unit 1: Career Exploration in the Agricultural/Wildlife Industry**  Students will learn about careers in various areas in the wildlife industry, the personal skills needed to obtain one of these jobs and how skills needed for success have changed over time. Students will understand the importance of time management, the importance of effective communication and appropriate interaction in the workplace as well as understand the importance of a first impression. This unit will culminate in an experiential activity designed to allow the students to create a resume and cover letter  with a job description and to participate in a mock job interview with a panel of possible employees. | 5 periods  225 minutes | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) identify career development, education, and entrepreneurship opportunities in the field of natural resources;  (B) apply competencies related to resources, information, interpersonal skills, and systems of operation in natural resources;  (C) demonstrate knowledge of personal and occupational safety and health, environmental regulations, and first-aid policy in the workplace; and  (D) analyze employers' expectations such as appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills. | |
| **Unit 2: Supervised Agricultural Experience (SAE)**    This unit, students will be able to define and describe Supervised Agricultural Experience (SAE) programs. Students will be able to explain how SAE’s are a vital part of the Agriculture Education Program by participating in local CTSO activities such as FFA as well as engage in a required SAE project. Students will be able to identify key partners in developing a successful SAE. Through involvement in an SAE, students will learn expected workplace behavior, develop specific skills within the industry, and will be given the opportunity to apply academic and occupational skills in the workplace. | 10 periods  450 minutes | (2) The student develops a supervised agriculture experience program. The student is expected to:  (A) plan, propose, conduct, document, and evaluate a supervised agriculture experience program as an experiential learning activity;  (B) apply proper record-keeping skills as they relate to the supervised agriculture experience;  (C) participate in youth leadership opportunities to create a well-rounded experience program; and  (D) produce and participate in a local program of activities using a strategic planning process. | |
| **Unit 3: The History and Importance of Wildlife Management**    In this introductory unit, students will learn how wildlife management as we know it today has evolved during the past 75-100 years. This unit focuses on wildlife management and how it is used to conserve, preserve and manage wildlife. The importance and benefits will be discussed as well as different laws and agencies concerning wildlife management. At the end of the unit students will divide into a group setting. Have them research the history of wildlife, fisheries and ecology management. Students must include at least two historical events for each type of management and explain its importance and discuss how it changes management practices. After completing their research, students must create a timeline which shows each event chronologically and include a description of each event as well. | 25 periods  1,125 minutes | (3) The student analyzes the importance of wildlife, with an emphasis on use and management. The student is expected to:  (A) analyze the importance of wildlife, fisheries, and ecology management;  (B) discuss the history of wildlife, fisheries, and ecology management;  (C) discuss policies, laws, and the administration of wildlife, fisheries, and ecology management; and  (D) analyze the economic impact of public recreation. | |
| **Unit 4: Ecological Aspects of Wildlife Management**  Students will identify and learn techniques used to identify characteristics of various wildlife species. The environment/habitat in which the animals live is also discussed. Students will gain a basic understanding of wildlife disease and parasites. Students will revisit the four basic needs of a habitat: food, water, cover and space and be able to discuss the importance of habitat and food plot management. As a culminating activity, students will research two wildlife animals found in Texas. The following information will be gathered: name distinguishing characteristics, body type, size, life span, required habitat, terrestrial or aquatic and home range/territory. The students will present their findings to the class. | 30 periods  1,350 minutes | (4) The student knows the scientific basis of and applies concepts related to wildlife management. The student is expected to:  (A) analyze the basic ecological concepts of game management;  (B) identify game, non-game, upland, and migratory game birds, waterfowl, furbearers, freshwater and saltwater fish, predators, and protected endangered species;  (C) describe and assess the management of wildlife populations;  (D) identify diseases and parasites impacting wildlife species;  (E) discuss the appropriate method of reporting disease and parasite outbreaks;  (F) identify plants impacting aquaculture and wildlife management practices; and  (G) discuss habitat and food plot management to benefit aquaculture and wildlife species. | |
| **Unit 5: Wildlife Utilization**  It is important for students to understand how human actions will affect the well being of the wildlife population. This unit focuses on wildlife legislation, regulations and commerce, and conserving endangered species. Students will also learn the importance of recreational and safety laws. At the end of this unit students will recognize that with proper management, we can conserve wildlife and simultaneously benefit the sportsman.As a culminating activity, students will create a poster, pamphlet, or PSA to inform the public of possible hazards while participating in outdoor recreation. The groups should create two pieces one as it relates to public land (such as wildlife refuges, local/state/ national parks, national forests, open space) while the other should focus on private land (such as ranches, farms, yards and other properties which belong to individuals). | 30 periods  1,350 minutes | (5) The student knows the interrelationship between various aspects of wildlife and outdoor public use management. The student is expected to:  (A) discuss the importance and role of the Wildlife Management Areas of Texas in the management of private and public lands;  (B) identify laws and regulations regarding the use of wildlife resources;  (C) apply laws and regulations regarding recreation safety such as angler, archer, boater, and hunter safety;  (D) compare and contrast public and private land use;  (E) identify appropriate safety certification requirements;  (F) recognize precautions to use when interfacing with the public concerning regulations and law enforcement;  (G) describe security issues for closed and restricted areas;  (H) recognize potential threat situations for the public of dangers on public and private lands;  (I) recognize the role of law enforcement; and  (J) summarize wildlife and fish harvest techniques and procedures. | |
| **Unit 6: Ecological Principles**  This unit introduces the students to types of ecosystems, the energy flow within an ecological system and food webs. Ecological succession and the various ways in which monitoring and sustaining ecosystems is also presented in this unit. As a culminating activity, students should select one of the following cycles discussed in the unit to research and describe the process and it’s significance. Students should use specific examples of why the selected cycle is important to the balance of the ecosystem and create a model of the cycle. | 30 periods  1,350 minutes | (6) The student examines natural cycles and ecological concepts. The student is expected to:  (A) explain the hydrologic, nitrogen, carbon, and nutrient cycles;  (B) evaluate the impact of natural cycles on succession;  (C) analyze the effects of natural cycles on population dynamics;  (D) distinguish between primary and secondary producers;  (E) compare and contrast predator-prey relationships;  (F) evaluate the effects of pollution sources; and  (G) evaluate riparian zones. | |
| **Unit 7: Map Skills**  This unit focuses on different types of maps and surveys available and students will learn to interpret their meaning. Students will learn to demonstrate map scale and actual size, evaluate elevations and terrain features from topographic maps and locate and interpret images on a map. Mapping technology such as Geographical Information Systems (GIS) and Global Positioning Systems (GPS) are also discussed. As a culminating activity, divide the students into groups and have them survey the outside of the school building. The students should include: specific measurements of the school building, school land, established boundaries, parking lot and topographic features. Have them present their findings to the class. | 15 periods  675 minutes | (7) The student applies cartographic skills to natural resource activities. The student is expected to:  (A) compare and contrast types of maps;  (B) interpret map features and legends;  (C) compare map scale to actual distance;  (D) evaluate elevation and terrain features from topographic maps;  (E) use land survey and coordinate systems; and  (F) locate position and interpret images using a geospatial interface. | |
| **Unit 8: Habitat Appraisal**  Students will be presented with various tools to assist them with understanding wildlife management practices. Students will be able to explain the correct actions and strategies to be employed in various management situations. At the end of this unit, students will conduct a field evaluation of wildlife habitats, identify wildlife management practices to improve the habitat for selected species and develop a habitat management plan. | 20 periods  900 minutes | (8) The student evaluates planning data by monitoring natural resource status. The student is expected to:  (A) identify resource inventory and population studies;  (B) devise sample plots and points;  (C) identify and locate resources;  (D) interpret data concerning resource availability and health;  (E) organize databases of resource data; and  (F) create a technical report.  (9) The student analyzes various natural resource enhancement techniques using scientific knowledge. The student is expected to:  (A) develop a riparian zone enhancement technique plan;  (B) evaluate wildlife habitat enhancement plans; and  (C) evaluate public use and recreation area enhancement plans. | |
| **Unit 9: Aquaculture**  Students will explore the aquaculture industries and various ways in which it operates. The students will also identify various methods of aquaculture management. As a culminating activity, students will compare production agriculture to aquaculture and explain the major environmental differences and challenges associated with each. | 10 periods  450 minutes | (10) The student demonstrates concepts related to optimum production. The student is expected to:  (A) discuss the importance and progress of aquaculture as an emerging industry;  (B) describe nutritional requirements of aquaculture production;  (C) identify requirements for optimum growth of species-specific aqua crops/aquaculture products; and  (D) identify appropriate treatments for diseases and parasites impacting wildlife species and aquaculture. | |