

Principles of Agriculture

Texas Essential Knowledge and Skills (TEKS) Subjects:

- (1) The student learns the employability characteristics of a successful employee. The student is expected to:
 - (A) identify career development and entrepreneurship opportunities in the field of agriculture, food, and natural resources, including how to search for and obtain employment, what qualifications are required for varying career fields, and how to advance in a position;
 - (B) identify careers in agriculture, food, and natural resources with required aptitudes in science, mathematics, language arts, and social studies;
 - (C) apply competencies related to resources, information, interpersonal skills, problem solving, critical thinking, and systems of operation in agriculture, food, and natural resources;
 - (D) demonstrate knowledge of personal and occupational safety, health, and first-aid policy in the workplace;
 - (E) develop response plans to emergency situations; and
 - (F) identify employers' expectations, including appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills.
- (2) The student develops a 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;
 - (B) apply proper record-keeping skills as they relate to the supervised agricultural experience;
 - (C) design and use a customized record-keeping system for the individual supervised agricultural experience;
 - (D) participate in youth leadership opportunities to create a well-rounded-experience program in agriculture; and
 - (E) produce a challenging approach for a local program of activities in agriculture, food, and natural resources.
- (3) The student identifies concepts related to cultural diversity. The student is expected to:
 - (A) discuss significant similarities and differences in international agriculture;
 - (B) explain the variety of world markets; and
 - (C) describe marketing factors and practices that impact other cultures.
- (4) The student describes the historical, current, and future significance of the agricultural industry. The student is expected to:
 - (A) define agriculture;
 - (B) identify the scope of agriculture and its effect upon society;
 - (C) identify significant historical and current agriculture, food, and natural resource developments;
 - (D) identify potential future scenarios for agriculture, food, and natural resource systems;
 - (E) describe how emerging technologies and globalization impacts agriculture, food, and natural resources; and
 - (F) compare and contrast issues impacting agriculture, food, and natural resources such as biotechnology, employment, safety, environmental, and animal welfare.

(5) The student analyzes the structure of agricultural leadership in organizations. The student is expected to:

- (A) develop premiere leadership skills and collaborate with others to accomplish organizational goals and objectives through the demonstration of characteristics such as empowerment, risk, communication, focusing on results, decision making, problem solving, investment in individuals, resource use and access, service, listening, coaching, developing others, team development, understanding and appreciating others, enthusiasm, creativity, conviction, mission, courage, focus, principles, change, integrity, values, ethics, humility, perseverance, self-discipline, responsibility, community, diversity, global awareness and knowledge, innovation, intuition, adaptation, lifelong learning, and coachability;
- (B) develop personal growth skills and collaborate with others to accomplish organizational goals and objectives through the demonstration of characteristics such as attitude, exercise, goal setting, planning, self-discipline, sense of balance, persistence, respect, friendship, integrity, morals, values, etiquette, citizenship, cross-cultural awareness, acceptance of change, respect for differences, decision making, principles, dependability, loyalty, trustworthiness, communication, learning, critical thinking, reasoning, creative thinking, problem solving, self-discovery, coping, friendship, self-reliance, sense of balance, empathy, compassion, ethics, coping, courage, and self-image or worth;
- (C) identify opportunities for leadership development and personal growth;
- (D) demonstrate democratic principles in conducting effective meetings;
- (E) describe team dynamics; and
- (F) describe the development of organizational vision, mission, and goals through strategic planning processes.

(6) The student explains agriculture, food, and natural resource systems at the local, state, national, and international levels. The student is expected to:

- (A) identify reasons for world trade;
- (B) identify the political impact of agriculture, food, and natural resources;
- (C) identify the interdependency of agriculture and the environment;
- (D) explain ethical stewardship practices that reduce negative impacts of agriculture upon land, air, and water resources;
- (E) review regulations and major laws to evaluate their impact on agriculture, food, and natural resources management;
- (F) analyze appropriate written material to stay abreast of current issues impacting agriculture, food, and natural resources management;
- (G) collect and analyze public opinion and data in order to make informed decisions; and
- (H) use critical-thinking skills to identify, organize alternatives, and evaluate public policy issues related to agriculture, food, and natural resources.

(7) The student demonstrates appropriate personal and communication skills. The student is expected to:

- (A) describe professional, ethical, and legal responsibilities;
- (B) demonstrate the uses of proper etiquette and behavior;
- (C) identify appropriate personal appearance and health habits;
- (D) practice written and oral communication skills and employ effective listening skills in formal and informal situations;
- (E) analyze written materials common to the agricultural industry;
- (F) demonstrate sound writing and preparation skills for oral presentations, including prepared and extemporaneous presentations
- (G) demonstrate effective speaking skills.

(8) The student applies appropriate research methods to agriculture, food, and natural resources topics. The student is expected to:

- (A) define major research and development fields of agriculture, food, and natural resources;
- (B) identify and apply research in the food and fiber products industries;
- (C) use a variety of resources for both research and development; and
- (D) describe scientific methods of research.

(9) The student applies problem-solving, mathematical, and organizational skills in order to plan and propose supervised agricultural experience programs as well as maintain financial and logistical records. The student is expected to:

- (A) develop project proposals by using business strategies which may include identifying learning objectives; describing project logistics, methodologies, and background; forecasting expenses and potential income through budgeting; and planning for major project timeline events through calendar implementation and documentation;
- (B) develop and maintain records appropriate to project type following project approval;
- (C) maintain appropriate financial records through use and management of appropriate journals, inventories, income and expense logs, financial statements, and balance sheets; and
- (D) conduct formative and summative reflective and financial analyses on project learning objectives and records in order to plan for the future.

(10) The student uses information technology tools specific to agriculture, food, and natural resource to access, manage, integrate, and create information. The student is expected to:

- (A) identify personal management software, electronic mail applications, and Internet applications;
- (B) use word-processing, spreadsheet, and presentation software;
- (C) identify collaborative, groupware, and virtual meeting software;
- (D) explain the benefits of Geographic Information Systems and Global Positioning Systems; and
- (E) recognize other computer-based equipment in agriculture, food, and natural resources.

(11) The student develops technical knowledge and skills related to plant systems. The student is expected to:

- (A) identify the components and properties of soils;
- (B) describe the process of soil formation;
- (C) classify soil formations;
- (D) describe the structure and functions of plant parts;
- (E) discuss plant germination, growth, and development;
- (F) describe plant reproduction, genetics, and breeding;
- (G) identify plants of importance to agriculture, food, and natural resources;
- (H) identify technological needs for improved capacity in transportation, improved production, increased product quality and operation, and specialized skills specific to plant systems; and
- (I) select, maintain, operate, and use tools, equipment, and personal protective equipment common to plant systems.

(12) The student develops technical knowledge and skills related to animal systems. The student is expected to:

- (A) describe animal growth and development;
- (B) identify animal anatomy and physiology;
- (C) identify breeds and classes of livestock; and
- (D) discuss animal selection, reproduction, breeding, and genetics.

(13) The student describes the principles of food products and processing systems. The student is expected to:

- (A) identify the importance of food products and processing systems;
- (B) determine trends in world food production;
- (C) identify technological needs for improved capacity in transportation, improved production, increased product quality and operation, and specialized skills specific to food products and processing systems; and
- (D) select, maintain, operate, and use tools, equipment, and personal protective equipment common to food products and processing systems.

(14) The student safely performs basic power, structural, and technical system skills in agricultural applications. The student is expected to:

- (A) identify major areas of power, structural, and technical systems as well as their impact on world agricultural production;
- (B) understand safe and appropriate laboratory procedures and policies
- (C) create proposals that include bill of materials, budget, schedule, drawings, and technical skills developed for basic power, structural, and technical system projects or structures;
- (D) identify building materials and fasteners common to power, structural, and technical systems;
- (E) use basic tools, skills, and common building materials to construct projects or structures;
- (F) select, maintain, operate, and use tools, equipment, and personal protective equipment common to power, structural, and technical systems; and
- (G) identify technological needs for improved capacity in transportation, improved production, increased product quality and operation, and specialized skills specific to power, structural, and technical systems.

(15) The student explains the relationship between agriculture and safety, health, and the environment. The student is expected to:

- (A) determine the effects of agriculture, food, and natural resources upon safety, health, and the environment;
- (B) identify regulations relating to safety, health, and environmental systems in agriculture, food, and natural resources;
- (C) describe methods to maintain and improve safety, health, and environmental systems in agriculture, food, and natural resources;
- (D) identify alternative energy sources that stem from or impact agriculture, food, and natural resources;
- (E) evaluate energy and water conservation methods; and
- (F) describe the importance of safety, health, and environmental regulations and procedures in the workplace..