



# Career Technical Education (CTE)

Agriculture, Food, and Natural Resources

Adoption Guide

*For additional information (e.g. pricing, copyright, ISBN) and Idaho completed evaluations, please contact the curricular materials coordinator.*

Materials in this guide are contracted from November 2020-December 31, 2026

## GRADES 9-12

Cengage

### Introductory Horticulture

- **Recommendation: Basic**

- **Strengths:** The text provides an introductory look at many of the areas included in animal agriculture. It can provide a good starting point for educators teaching within this content area.
- **Weaknesses:** The text is basic and will need to be supported by the teacher to meet all the required standards for the course.
- **Other:** This text provides educators with an appropriate amount of activities as well as many opportunities to support a complete agricultural education program.
- **Key Features:** Providing the most up-to-date coverage of basic principles and methods of practical application, this text offers many avenues to explore the horticulture field and remain on the cutting-edge of the industry. Extremely student friendly, the text fully engages you within the learning experience through vivid imagery, a variety of activities, step-by-step procedures, and additional resources encouraging further exploration. This edition emphasizes organic and sustainable farming methods, introduces new and emerging technology, and focuses on organizations and career development paths relevant to budding horticulturists. Through extensive full-color visuals, current information, and engaging activities, this all-new edition ensures success within a horticulture course - and well beyond.

## Landscaping: Principles and Practices

- **Recommendation: Component**

- Strengths: This text provides information that would supplement an advanced course in Plant Science.
- Weaknesses: This text assumes prior knowledge in the plant science industry and does not include many of the introductory standards for Idaho CTE.
- Other: This text could be used in a course specifically for Landscaping, but assumes students have prior experience and knowledge in the plant science industry.
- Key Features: LANDSCAPING PRINCIPLES AND PRACTICES, provides a solid foundation in three areas of modern professional practice: landscape design, contracting and management. Updated to reflect today's industry, the text includes new information, new practical learning features, and all-new photos and illustrations. Coverage begins with an overview of landscape design principles and processes, and then explores contracting, installation, maintenance, and professional specialization. The text also features expanded information on the National FFA Organization and content aligned to the Precision Exam for Landscape Management, making it easier to connect classroom work to current industry needs, standards, and certifications.
  - Each chapter opens with a list of learning objectives. These help the student and instructor identify the most important concepts from all the information in the chapter.
  - A Key Term list in each chapter highlights the terms presented in the chapter and those that the student should be able to define, in context, upon completion of the lesson.
  - Knowledge and Skill Builders features allow you to strengthen your proficiency in landscape design and the business of landscaping.
  - End of chapter questions and activities, including rigorous questions in the Achievement Review, Student Activities, and Suggested Supervised Agricultural Experience (SAE) activities provide a method of evaluating your knowledge of the information presented in the chapter.
  - New Appendix on SAE Programs– Appendix E describes the features of a Supervised Agricultural Experience (SAE) Program and outlines various SAE project examples to spark student interest and engagement in each of the agricultural education pathways.
  - Correlated to Precision Exams Landscape Management Exam, and two exams (pre/post) are included for each unit purchased of the "Student Edition + MindTap bundles.

## Managing Our Natural Resources

- **Recommendation: Basic**

- Strengths: This text does a good job of going over the basics in the introduction section and then advances by breaking each concept down further, later on within the text. The case studies throughout the text and in the appendix were great for students to make real-world connections.
- Weaknesses: The text goes over some great concepts that can get lost due to wordiness of the text. Breaking up some of the longer sections, either with headers or illustrations, could solve the issue and make the text more user friendly. It would be beneficial for students to see more of an FFA connection within the text as well.
- Other: The case studies are a wonderful real-world connection for students to apply the knowledge gained from the text.
- Key Features: MANAGING OUR NATURAL RESOURCES is an exploration of the world's natural resources and the ways professionals manage them. Written for introductory agriculture courses, the book examines a broad variety of topics from forest fires and fishery management to water purification and energy conservation. Organized into an eight-unit overview, chapters cover the must-know fundamentals of land, water, and air, forestry, fish and wildlife, and energy and mineral resources, along with the hottest issues impacting them today. Full-color photographs, illustrations, and case studies add depth and clarity to every chapter, while appendices take readers beyond the book to websites, certification programs, and additional learning opportunities that promote critical thinking. Available in digital formats and with a variety of supplemental learning tools including: videos, self-quizzing, software, and apps that make learning extraordinary.
  - Each unit ends with a thought-provoking case study that helps readers see real-world issues in action, develop analytical skills, and contribute to classroom discussion.
  - Chapters address the full gamut of popular and sometimes controversial topics, such as alternative energy, whaling, GMOs, wetland preservation, water pollution, fracking, and more.
  - Eight teaching units logically correspond to curriculum and instructional planning requirements for teachers in natural resources management and agricultural courses.
  - Examining a large number of agricultural topics gives readers a thorough introduction to natural resources management and careers they may have never imagined.

- Focused Subjects: Chapters center on key learning objectives that keep readers moving through the material, acquiring skills, and broadening their view of agriculture and natural resource management. New photos and graphic illustrations, extra cases studies and appendices, revised data, and an expanded list of authoritative web sites.
- An all-new section on hydraulic fracturing studies the expanding use of this technology to greatly increase petroleum and natural gas production in the United States.
- Detailed content updates address oil production and mineral reserves, as well as related legislation and policy changes, and discussions on the accelerating importance of oil sands for energy production.
- A new chapter on air quality examines human impacts and emerging improvement techniques while a fresh chapter on water transportation highlights this growing medium of passage.

### The Science of Animal Agriculture

- **Recommendation: Basic**

- Strengths: This text did a very good job of covering a widespread topic. This text was excellent in organization and layout making it user friendly. There are a variety of student activities that given at the end of the chapters to reach multiple learners. It will be easy for a teacher to use this text in their classroom.
- Weaknesses: It could be improved on its integration with FFA, there are several examples of Career Development Events within the text but it limits the leadership component that is necessary within a program.
- Other: This text does a good job of introducing many different areas of the animal science industry.
- Key Features: Presenting up-to-date information in a highly visual, reader-friendly manner, THE SCIENCE OF ANIMAL AGRICULTURE, provides a thorough introduction to basic science concepts involved in the production of agricultural animals. By combining scientific principles with practical applications, this proven resource clearly demonstrates how science and agriculture are integrally related. The text covers biological processes of agricultural animals--including reproduction, growth and development, and animal behavior--as well as concerns associated with production, such as nutrition, disease, and even the latest in animal biotechnology. The author also addresses key issues such as animal welfare, consumer concerns, and environmental considerations, offering students further insights into today's agricultural industry.

- Objectives are listed at the beginning of each chapter and provide both objectives in basic science and those specific to agricultural science. Those related to basic science are concepts students are expected to learn prior to graduation.
- Each chapter includes a list that highlights the terms presented in the chapter and those that the student should be able to define, in context, upon completion of the lesson.
- From the Field boxes show hundreds of vibrant photos as well as informational graphics and tables encourage student engagement and keep them current with industry statistics.
- New to this edition: Alignment to National Agriculture, Food and Natural Resources (AFNR) Standards for Animal Systems. Each chapter opens with correlations to the National AFNR Standards for Animal Systems Standards linking content to the knowledge and skills essential to preparing students for success in the industry.
- Current Information from the Industry reports on the latest statistics from, the USDA, advancements in breeding, the expansion of the poultry production and processing, and the causes behind hive collapse in the bee-keeping industry.
- Expanded information on the National FFA includes the history and evolution of the organization and various opportunities and programs designed to further student success in the agricultural education curriculum and beyond.
- Putting it into Practice -These engaging articles provide information on various FFA activities related to animal science, helping students connect chapter content with practical hands-on experiences.
- Summary and Chapter Review -These chapter features encourage students to review and apply what they have learned in the lesson. The Chapter Review includes Review Questions to evaluate student knowledge, and Student Learning Activities to engage students in further learning.
- Appendix B includes a complete list of Career Development Events and Leadership Development Events.
- The Appendix on SAE programs outline Information on SAE Programs, including how to plan, propose, conduct, document and evaluate a program, is included, as well as several examples of projects for students seeking ideas for their own SAE

## Agricultural Mechanics: Fundamentals and Applications

- **Recommendation: Comprehensive**

- Strengths: Provides a basic level of knowledge in a wide variety of areas. Includes project-based learning.
- Weaknesses: Some material is outdated or seems incomplete.
- Key Features: Beyond providing a thorough introduction to the field of agricultural mechanics the text covers fundamental mechanical and engineering theory, common tools and materials, and practical applications including shop orientation and procedures, woodworking and metalworking, tool fitting, project planning, cutting and welding, paints and paint application, power mechanics, electrical wiring, plumbing, hydraulics, concrete and masonry, and agricultural structures. Safety is also emphasized strongly throughout the text, and a dedicated unit introduces students to diverse career opportunities. The current edition also features new information on the National FFA Organization and SAEs, first aid, and engine powered equipment, as well as new activities and lab exercises.
  - This edition focuses on additional technical information, as needed, throughout. The text is consistent in format, easy to use for individualized instruction, easy to teach from, and simple for substitute teachers. It also provides easy methods to assess student progress. Each unit is part of a section, and each includes (1) a statement of objective, (2) competencies to be developed, (3) a list of new terms, (4) a materials list, (5) highly illustrated text material, (6) student activities, and (7) self-evaluation. This edition contains updated relevant websites that provide more information on the unit topics. All new terms are carefully defined in the text as well as in the glossary.
  - The appendices include 40 project plans with bills of materials and construction procedures. The projects were carefully selected to match the skills covered in the text. Plans include some projects that have become classics in the field, some that cover targeted enterprises, and some that are new and innovative. The projects were also chosen because they are used in high school agriculture/agribusiness, agriscience, or related programs.
  - The appendices also include 36 tables containing information for estimating, planning, selecting, purchasing, and building in agricultural mechanics. The project plans, tables, glossary, and index provide unique reference materials that, for many users, are alone worth the price of the text.

- The following updated and enhanced content addresses the evolving agriscience curriculum • Updated statistics dealing with agricultural mechanics. • Expanded coverage of safety using power hand tools, stationary power equipment, and other areas. • Updated Relevant Websites at the end of each unit provide clearer search information in the event web links change or become out of date. • Integrates agricultural mechanization with plant, animal, and environmental sciences to provide students with a broad view of the world of agriculture. • Every unit combines theory with practice. • Mathematical skill development is emphasized throughout. • Each unit has been updated to include the latest information on agricultural mechanics. • Over 350 new and modernized illustrations and photographs offer improved detail and modern equipment related to small engines and power mechanics, plumbing, planning and constructing agricultural structures, and more. New photos depict actual high school students working in the agricultural mechanics workshop.
- Precision Exams Edition of this trusted text aligns to Precision Exams' Agricultural Systems Technology I (110), exam and Agricultural Systems Technology II (220), exam. One exam is included for each unit purchased of the Student Edition + MindTap Bundles.

### **Welding: Principles and Applications**

- **Recommendation: Comprehensive**
  - Strengths: Provides in-depth knowledge of welding processes.
  - Weaknesses: Mentions OSHA but lacked a description and missing instruction for examining cut surfaces and edges of base metal parts.
  - Key Features: This proven guide provides students with the knowledge and skills they need to complete AWS SENSE Level I and Level II programs, create Workmanship Qualification Specimens, and earn professional certification. Advancing rapidly from basic concepts and processes to today's most complex, cutting-edge welding technologies and practices, this comprehensive text features valuable information on topics such as welding metallurgy, metal fabrication, weld testing and inspection, joint design, job costing, and environmental and conservation tips. The author opens each section by introducing students to the materials, equipment, setup procedures, and critical safety information they need to execute a specific process successfully, while subsequent chapters focus on individual welding tasks leading to SENSE certification. In addition to hundreds of new photos showcasing current welding

tools and techniques. The book contains examples of current welding technologies and practices, as well as providing a solid foundation in key topics such as welding metallurgy, metal fabrication, weld testing and inspection, joint design, and job costing, enabling students to prepare for success as they enter the dynamic field of modern welding.

- **\*NEW\*** The technique of GTAW cup walking is introduced earlier, and the author has developed unique techniques to help students learn the required torch manipulation. Once considered an advanced skill, cup walking has become far more common, and the text is designed to help instructors more easily teach this important skill.
- **\*NEW\*** Process-specific chapters include state-of-the-art induction welding machine operations for GTAW, GMAW, FCAW, and SMAW. These advanced machines resemble computers more than traditional welding machines, enabling multi-functionality and sophisticated operations that students will need to understand and apply for long-term success in today's industry.
- **\*NEW\*** Innovations in PAC equipment have already improved cut quality, consumable life, and operational cost-efficiency, and new, intelligent PAC systems will enable communication between the torch and the power supply to optimize plasma arc cutting. The Ninth Edition covers these recent and emerging technologies and techniques to equip students for professional success.
- **\*NEW\*** Additional CAC-A material and photographs have been included to better prepare students for SENSE CAC-A lab activities, enabling them to gain a broad knowledge of key processes.
- **\*NEW\*** Hundreds of new, high-resolution photos provide close-ups of welding details that are critical for a full, detailed understanding of the complex, varied processes involved in skilled professional practice.
- **\*NEW\*** Essential information on base metal, welding position, consumables, machine settings, and other fundamental topics has been reformatted to make it easier for students to absorb and retain. Similar to the formatting of many Welding Procedure Specifications (WPS), key material is now presented in a table before each welding practice, providing valuable practice in reading WPS formatted data.
- **\*NEW\*** The author has added information on key soft skills to help students develop the non-technical knowledge, interpersonal skills, problem-solving abilities that can be essential for workplace success.



## Introduction to Food Science and Food Systems

- **Recommendation: Component**

- Strengths: Meets the food science component of the pathway standards.
- Weaknesses: It is not designed for the food processing components of the standards. The book is clearly intended for a food science program but doesn't fit the food processing program very well.
- Key Features: INTRODUCTION TO FOOD SCIENCE AND FOOD SYSTEMS, explores the foundations of the food industry, from nutrition and chemistry to processing and safety, and delves into some of the most pressing foodborne issues of our day. As the world grapples with critical issues such as hunger and GMOs, opportunities abound in agriculture and food science careers, and this edition gives you the knowledge and skills required for success. Laced with full-color images, drawings, charts, and graphs, chapters deliver the latest information on genetically engineered foods, environmental concerns and sustainability, food needs of the world, the impacts of food on health, and more.
  - This text also tests your understanding of concepts with practical, hands-on activities in math, science and other key areas. Written with your future in mind, readings also correlate with National Agricultural Education Standards and FFA Career Development Events (CDEs) to prepare you for a meaningful career in today's agriscience industry.
  - The text is divided into four sections, including content in context so that information is presented in a relevant and meaningful way that reinforces learning. Learning Objectives and Key Terms set the stage for the chapter and help learners identify key concepts and information. Also included are National Agricultural Education Standards Correlations that highlight the specific core competency that is met through successful completion of each chapter. Math and science connection activities es throughout encourage students to demonstrate these skills in the context of food science. Application is emphasized throughout with engaging Math and Science Connection activities integrated into each chapter and a set of Review Questions and Student Activities to conclude each chapter.
  - Further learning is encouraged, with engaging articles highlighting interesting tidbits about the industry—whether historical insights, fun facts, or a synopsis of an emerging food trend—and a list of Additional Resources at the end of each chapter to inspire students to learn more about specific topics. Highly illustrated, full color, the text is accompanied by tables, charts, graphs, photos, and illustrations to assist further understanding.

- Robust appendices reinforce topics learned in the chapters and offer valuable reference materials. Appendix A contains a review of the chemistry behind food science for those students who require additional learning in this area. Appendix B includes a multitude of reference tables, in particular the Food Composition Table, which provides specific nutrient information of different foods. It also features another list of Internet resources so that students can expand on their learning of specific food-science topics. Appendix C covers the details of harvesting and storing fruits, nuts, and vegetables. Also included is a combined Glossary and Glosario that provides terms and definitions in both English and Spanish.
- AS/P2 soft Skills Bundle is also included to help students develop effective communication skills for use in the workplace.

### **Leadership: Personal Development and Career Success**

- **Recommendation: Comprehensive**

- Strengths: Curriculum and resources directly align with the national student organization for the program pathway, FFA. An active FFA chapter is a required component of the Agriculture programs for funding from the Division of Career and Technical Education. Content within resource is current and accurate.
- Weaknesses: Resources, aligned rubrics, scoring guidelines and exemplars are not editable for the teachers ease of use. Curriculum does not fully provide guidance for access and equity related to support of differentiated and culturally responsive instruction, such as:
  - Suggestions for how to promote equitable instruction by making connections to culture, home, neighborhood, and community as appropriate.
  - Appropriate scaffolding, interventions, and supports, including integrated and appropriate reading, writing, listening, and speaking alternatives (e.g., translations, picture support, graphic organizers) that neither sacrifice content nor avoid
  - Digital and print resources that provide various levels of readability.
  - Modifications and extensions for all students, including those performing above their grade level, to deepen understanding of the content.
  - Materials in multiple language formats. (only glossary is provided in both English and Spanish.)
- Key Features: If your goals include a successful career in agriculture--and a leadership role in tomorrow's food, fiber, or natural resources fields--this is the ideal resource for you. LEADERSHIP: PERSONAL DEVELOPMENT AND CAREER

SUCCESS, explores the leadership skills that are most important in agricultural industries, helping you define and reinforce your strongest traits while developing the skills you need to succeed. Written in an engaging, reader-friendly style, the text covers public speaking, Future Farmers of America (FFA) parliamentary procedure, group dynamics, interpersonal skills, and workplace readiness, as well as basic English language, communication, and higher-order thinking concepts. The authors draw on decades of family farming and agricultural education experience to offer practical guidance on topics like budgeting, financial management, and investing, and they've included clear learning objectives and engaging activities to help you master the material and hone your skills.

- Each chapter begins with a list of performance objectives, which reflect the main topics of the chapter. They are followed by Terms to Know, which enable the students to better understand the chapter content. Most chapters include vignettes that make the discussion more relevant by illustrating a particular point of objective.
- Each chapter ends with a summary as well as various types of exercise. The Take It to the Net section allows students to develop and practice research skills using the Internet to gain more recent information. Review questions, completion and matching exercises and activities help with retention and the application of newly learned concepts and practices. Critical thinking is also a component of the activities section.

### **Agriscience Fundamentals and Applications**

- **Recommendation: Component**

- Strengths: Great textbook for an introductory course. Good science instruction and touches on a variety of areas.
- Weaknesses: This book could be used for introductory level courses, but probably not for the Leadership course. It lacks of depth in the leadership and communication areas. It could serve as a component but not as the foundation of the course.
- Key Features: In addition to providing a comprehensive overview of the agricultural industry and industry-based sciences, the Precision Exams Edition of Burton's AGRISCIENCE: FUNDAMENTALS AND APPLICATIONS, aligns to Precision Exams' Agricultural Science exam. The text covers essential topics such as agriscience in the information age, natural resources, integrated pest management, plant science, animal science, food science, and communication and management, giving students with a solid foundation in the basic principles

and practices of agriscience. The Precision Exams Edition also features new information related to the National FFA Organization and selecting and planning an SAE; how math, science, and social studies relate to agriscience; current technologies used in the industry; career opportunities; and advice for professional success and business ownership. Features in this enhanced text include the following: ■ “Suggested Class Activities” in each unit give both the student and the instructor an innovative way to become actively involved with the content of each unit. ■ “Hot Topics in Agriscience” is a standard unit feature that describes recent scientific discoveries for which an agricultural application has been identified. ■ Internet icons are placed throughout each unit. These icons include key search terms that will help students and instructors explore agriscience topics beyond the scope of the textbook.

## CEV Multimedia, Ltd.

### iCEV Agricultural Science Site – Animal Science

- **Recommendation: Comprehensive**
  - Strengths: CEV does a great job of providing a simple, easy to navigate format. It has lots of supplemental materials for students to practice and enforce knowledge from the course. The videos are very well organized and help enhance the material.
  - Weaknesses: CEV could be improved by creating a variety of assignments. The assignments are very similar throughout the program and could use some diversity to reach different types of learners.
  - Other: The materials provided are relevant, easy to navigate through, and have many supplemental materials for lessons. There should be some consideration to providing adapted materials available for ELL students or others who need intervention plans (very generic adaptations would be beneficial).
  - Key Features:
    - Multimedia-based, online curriculum
    - Featuring state-aligned pacing guides and custom playlists
    - Up-to-date, relevant video segments, slide series and other resources
    - Quality, accurate content featuring industry experts
    - Engaging lessons can be viewed on most devices, i.e. PC, Mac, iPad, tablets, etc.
    - Student licenses promote self-paced learning
    - Curriculum provides time-saving lesson plans, thought-provoking student activities, real-world projects and pre-made assessments
    - Career exploration and guidance highlighted in each lesson