Food Science & Processing Technology Evaluation Tool

2020 Curricular Materials Review

Idaho CTE Agriculture, Food, and Natural Resources (AFNR) Food Science & Processing Technology Program Standards[[1]](#footnote-1)

**Publisher information**

* Publisher Name:
* Title:
* Grade Level:
* ISBN #:
* Author:
* Copyright:

# Instructions:

Complete the Publisher Standards Alignment Report below. Please provide written justification as to how the material meets the standard along with location references. If a justification requires additional space, please submit response on an additional document.

# Publisher STANDARDS ALIGNMENT Report:

## Standard AFSP.1.0: Food Industry and Historical Development

### Performance Standard AFSP.1.1 Evaluate the Significance and Implications of Changes and Trends in the Food Products and Processing Industry

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.1.1.1 Discuss historical changes in the food products and processing industry. |  |
| CTE AFSP.1.1.2 Evaluate current trends in the food products and processing industry (e.g., dietary food guides, niche markets, and marketing trends). |  |
| CTE AFSP.1.1.3 Identify consumer concerns related to food quality and safety (such as allergens, antibiotic use, genetically modified organisms (GMOs), pesticide use, and food borne illnesses). |  |
| CTE AFSP.1.1.4 Discuss the economic implications when low-quality and unsafe foods enter the market. |  |
| CTE AFSP.1.1.5 Describe the scope and economic importance of agriculture and food processing in the United States and the world, using quantitative data compiled by government agencies and news media. |  |
| CTE AFSP.1.1.6 Examine the impact of consumer trends on food products and processing practices (e.g., health and nutrition, organic, information about food products, local food movements, farm-to-fork supply chains, food system transparency). |  |
| CTE AFSP.1.1.7 Compare and contrast cultural differences regarding food products and processing practices. |  |
| CTE AFSP.1.1.8 Identify and explain environmental and safety concerns about the food supply. |  |
| CTE AFSP.1.1.9 Evaluate desirable and undesirable outcomes of emerging technologies used in the food products and processing industry. |  |

### Performance Standard AFSP.1.2 Investigate Industry Organizations, Groups, and Regulatory Agencies Affecting the Food Products and Processing Industry

| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| CTE AFSP.1.2.1 Explain the purposes of organizations that are part of and/or regulate the food products and processing industry. |  |
| CTE AFSP.1.2.2 Determine the relationship between regulatory agencies (i.e., FDA, USDA, CDC, WHO) and the food products and processing industry. |  |
| CTE AFSP.1.2.3 Assess the changes in the food products and processing industry brought about by industry organizations or regulatory agencies. |  |

## Standard AFSP.2.0: Food Safety and Sanitation

### Performance Standard AFSP.2.1 Create Sanitation Standard Operating Procedures and Master Sanitation Schedules

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.2.1.1 Create Sanitation Standard Operating Procedures (SSOP) for a food processing company. |  |
| CTE AFSP.2.1.2 Understand Good Manufacturing Practices (GMP) and how they relate to a food processing company and employee and equipment hygiene. |  |
| CTE AFSP.2.1.3 Create Master Sanitation Schedule (MSS) for a food processing company. |  |

### Performance Standard AFSP.2.2 Create a Food Safety Plan Based On the Biological Chemical, and Physical Hazards Associated With Food Processing and Handling

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.2.2.1 Understand and evaluate the different biological hazards (prions, bacteria, viruses, protozoans, etc.) that could be present in the raw ingredient through processing and distribution of a food product. |  |
| CTE AFSP.2.2.2 Understand and evaluate the different chemical hazards (pesticides, herbicides, allergens, paints, heavy metals, dioxins, PCBs, etc.) that could be present in the raw ingredient through processing and distribution of a food product. |  |
| CTE AFSP.2.2.3 Understand and evaluate the different physical hazards (metal, plastic, rubber, etc.) that could be present in the raw ingredient through processing and distribution of a food product. |  |
| CTE AFSP.2.2.4 Identify potential sources of contamination. |  |
| CTE AFSP.2.2.5 Develop strategies to eliminate or reduce contamination to an acceptable level. |  |
| CTE AFSP.2.2.6 Discuss current regulatory food safety programs, including HACCP (Hazard Analysis Critical Control Point), FSP (Food Safety Plan), and Food Defense. |  |

### Performance Standard AFSP.2.3 Apply Sanitation Procedures in the Handling, Processing, and Storing of Food Products

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.2.3.1 Evaluate food product handling procedures. |  |
| CTE AFSP.1.3.2 Explain the importance of microbiological tests (e.g., ATP, equipment swabs, Environmental swab, Pathogen Environmental Monitoring -PEM) in food sanitation verification. |  |
| CTE AFSP.2.3.3 Explain the importance of allergen cross-contact and how sanitation affects allergen management. |  |
| CTE AFSP.2.3.4 Discuss documentation procedures and their importance in a food processing and distribution system. |  |
| CTE AFSP.2.3.5 Understand how Clean in Place (CIP) and Clean Out of Place (COP) affects overall sanitation of a facility. |  |

## Standard AFSP.3.0: Personal Safety

### Performance Standard AFSP.3.1 Understand Worker Safety Principles in a Manufacturing Facility

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.3.1.1 Outline guidelines for personnel safety in the food products and processing industry (e.g., lockout-tagout, personal protective equipment, permit required confined space, machine guarding, walking working surfaces, motorized vehicles). |  |
| CTE AFSP.3.1.2 Perform a safety risk analysis of a manufacturing facility, including behavior based accident preventions. |  |
| CTE AFSP.3.1.3 Create mitigation strategies (engineering, administrative, and PPE) focusing on controls. |  |
| CTE AFSP.3.1.4 Demonstrate the ability to follow safety and operational procedures in a lab setting and satisfactorily complete a safety test. |  |

## Standard AFSP.4.0: The Science of Food Products

### Performance Standard AFSP.4.1 Apply Principles of Science to Provide a Safe, Wholesome, and Nutritious Food Supply

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.4.1.1 Design a research project in food science using the scientific method. |  |
| CTE AFSP.4.1.2 Examine, interpret, and explain the meaning of required components on a food label. |  |
| CTE AFSP.4.1.3 Determine a strategy to prepare and label foods according to the established standards of regulatory agencies (including nutrition facts panel, ingredients, weights, and measures, allergens, etc.). |  |

### Performance Standard AFSP.4.2 Evaluate, Grade, and Classify Processed Food Products

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.4.2.1 Perform quality control inspections of raw and finished food products. |  |
| CTE AFSP.4.2.2 Explain how the chemical and physical properties of foods influence nutritional value and eating quality. |  |
| CTE AFSP.4.2.3 Compare and contrast foods stored under varying conditions for quality, shelf life, and intended use. |  |
| CTE AFSP.4.2.4 Design and construct experiments for quality assurance tests on food products. |  |
| CTE AFSP.4.2.5 Interpret and evaluate results of quality assurance tests on food products and examine steps to implement corrective procedures. |  |

### Performance Standard AFSP.4.3 Understand the Constituents of Food (e.g., lipids, proteins, carbohydrates, water, vitamins, minerals)

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.4.3.1 Differentiate between the common foods constituents (i.e., proteins, carbohydrates, fats, vitamins, minerals, and water). |  |
| CTE AFSP.4.3.2 Compare and contrast food constituents and their relative value to product taste, appearance, and so forth. |  |
| CTE AFSP.4.3.3 Research and report methods of nutritional planning to meet essential needs for the human diet (e.g., MyPlate). |  |

### Performance Standard AFSP.4.4 Understand and Recognize the Different Additives in Food and Purposes of Use in Processing

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.4.4.1 Identify common food additives and identify their properties (e.g., preservatives, antioxidants, buffers, stabilizers, colors, flavors). |  |
| CTE AFSP.4.4.2 Describe the purpose of common food additives (CFA). |  |
| CTE AFSP.4.4.3 Describe how CFAs influence the chemistry of food. |  |

### Performance Standard AFSP.4.5 Research and Development

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.4.5.1 Identify the steps of research and development in the food production and processing industry. |  |
| CTE AFSP.4.5.2 Outline the process for designing a new food product from concept to production. |  |
| CTE AFSP.4.5.3 Identify the needs and mechanics of a plant scale test. |  |

## Standard AFSP.5.0: Food Processing Operations and Technology

### Performance Standard AFSP.5.1 Process Food and Food Products for Sale and Distribution

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.5.1.1 Understand principles of raw material/ingredient receiving. |  |
| CTE AFSP.5.1.2 Create a flow diagram for food production process steps. |  |
| CTE AFSP.5.1.3 Identify packaging processes and logistics (e.g., sub packaging, case filling, palletizing). |  |
| CTE AFSP.5.1.4 Understand principles of production scheduling, product storage, and distribution. |  |

### Performance Standard AFSP.5.2 Preserve Food and Food Products for Sale and Distribution

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.5.2.1 Describe factors related to food preservation. |  |
| CTE AFSP.5.2.2 Describe factors that contribute to food deterioration. |  |
| CTE AFSP.5.2.3 Preserve foods using various methods and techniques. |  |
| CTE AFSP.5.2.4 Identify and summarize purposes of food storage procedures (e.g. temperature regulation, monitoring). |  |
| CTE AFSP.5.2.5 Prepare plans that ensure implementation of proper food storage procedures and traceability. |  |
| CTE AFSP.5.2.6 Differentiate between methods and materials used for processing food for different markets (e.g., fresh food products, ready to eat food products, organic). |  |

### Performance Standard AFSP.5.3 Food Process Technology and Maintenance

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.5.3.1 List and categorize types of equipment used in food products and processing systems including automated systems. |  |
| CTE AFSP.5.3.2 List and apply strategies to maintain equipment and facilities for food products and processing systems (Preventative Maintenance). |  |
| CTE AFSP.5.3.3 Describe Piping and Instrumentation Diagrams as they relate to food processing. |  |
| CTE AFSP.5.3.4 Describe the principles of Operational Technology (OT) and how they relate to larger information systems (Big Data Analytics, Statistical Process Control). |  |
| CTE AFSP.5.3.5 Identify the role of robotics in food processing and packaging. |  |

## Standard AFSP.6.0: Explore Career Opportunities

### Performance Standard AFSP.6.1 Understand Employment Fields in the Food Science Technology Industry

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.6.1.1 Identify potential careers in the food science and processing industry. |  |
| CTE AFSP.6.1.2 Interview current food science/processing professionals. |  |
| CTE AFSP.6.1.3 Demonstrate employability skills for a career in the food science and processing industry (e.g., create a resume and cover letter, participate in job interviews). |  |
| CTE AFSP.6.1.4 Research additional industry certifications available (i.e., Serve safe, HACCP, OSHA, PCQI). |  |

## Standard AFSP.7.0: Leadership Training Through Agricultural Education

### Performance Standard AFSP.7.1 Recognize the Traits of Effective Leaders and Participate In Leadership Training Through Involvement in FFA

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.7.1.1 Demonstrate effective leadership and participation in leadership training. |  |
| CTE AFSP.7.1.2 Expand leadership experience by participating in a chapter activity. |  |
| CTE AFSP.7.1.3 Participate in a career development event at the local level or above. |  |
| CTE AFSP.7.1.4 Exhibit leadership skills by demonstrating proper parliamentary procedure. |  |
| CTE AFSP.7.1.5 Participate in a speech or presentation activity. |  |

### Performance Standard ABM.7.2 Perform a Market and Sales Analysis

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.7.2.1 Participate in a school improvement or community development project. |  |

Standard AFSP.8.0: Supervised Agricultural Experience (SAE)

### Performance Standard AFSP.8.1 Maintain a Supervised Agricultural Experience

|  |  |
| --- | --- |
| Student Competencies by Performance Standard | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| CTE AFSP.8.1.1 Accurately maintain SAE record books. |  |
| CTE AFSP.8.1.2 Investigate the proficiency award areas related to SAE program area. |  |
| CTE AFSP.8.1.3 Actively pursue necessary steps to receive higher degrees in FFA. |  |

# Indicators of quality Rubric:

Standards aligned and Integrated Curriculum:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The curriculum is based on industry-validated technical standards and competencies. |  |
| 1. The curriculum is aligned with relevant content and standards for core subjects, such as reading, math and science, including federal, state and/or local standards, as appropriate. |  |
| 1. The curriculum incorporates employability skill standards that help students succeed in the workplace, such as problem solving, critical thinking, teamwork, communications and workplace etiquette. |  |
| 1. The curriculum allows for student application of integrated knowledge and skills in authentic scenarios. |  |
| 1. Materials used reflect current workplace, industry and/or occupational practices and requirements. |  |

Access and Equity:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Materials are provided in a way that ensures all students have the opportunity to achieve success in the program of study, including by meeting Title IX, Americans with Disabilities Act and other accessibility requirements. |  |
| 1. Materials and assessments are free from bias, inclusive and non-discriminatory, and offered in a way that ensures all students have the opportunity to achieve success in the program of study. |  |
| 1. Contains guidance to support differentiated and culturally responsive (i.e., purposefully represents diverse cultures, linguistic backgrounds, learning styles and interests) instruction in the classroom so that every student’s need are addressed by including:    1. Suggestions for how to promote equitable instruction by making connections to culture, home, neighborhood, and community as appropriate.    2. 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 language development for English language learners, special needs, or below grade level readers.    3. Digital and print resources that provide various levels of readability.    4. Modifications and extensions for all students, including those performing above their grade level, to deepen understanding of the content.    5. Materials in multiple language formats. |  |

Student Focus:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The material supports the sequential and cumulative development of foundational skills and progresses in specificity to build students’ depth of knowledge and skills. Those skills are necessary for a student’s independent comprehension of grade-level complex texts and mastery of tasks called for by the standards. |  |
| 1. Content and standards within the program of study are non-duplicative and vertically aligned to prepare students to transition seamlessly to the next level of education. |  |
| 1. The material provides many and varied opportunities for students to work with each standard within the grade level. |  |
| 1. The material cross-refers and integrates other content areas. |  |
| 1. The material has a balance of text types and lengths that encourage close, in-depth reading and rereading, analysis, comparison, and synthesis of texts. |  |
| 1. The material includes sufficient supplementary activities or assignments that are appropriately integrated into the text. |  |
| 1. The material has activities and assignments that develop problem-solving skills and foster synthesis and inquiry at both an individual and group level. |  |
| 1. The material has activities and assignments that reflect varied learning styles of students. |  |
| 1. The material includes appropriate instructional strategies. |  |
| 1. Project-based learning and related instructional approaches, such as problem-based, inquiry-based and challenge-based learning, are fully integrated into the material. |  |

Pedagogical Approach:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Provides guidance for teachers throughout for how learning experiences build on each other to support students in developing a deep understanding of the content. |  |
| 1. Provides scaffolded supports for teachers to facilitate learning of the content so that students are increasingly responsible for making sense of the content. |  |
| 1. The material provides opportunities for supporting English language learners to regularly and actively participate with grade-level text. |  |
| 1. The material gives clear and concise instruction to teachers and students. It is easy to navigate and understand. |  |
| 1. Includes appropriate academic and content-specific vocabulary in the context of the learning experience that is accessible, introduced, reinforced, reviewed, and augmented with visual representations when appropriate. |  |
| 1. Allows teachers to access, revise, and print form digital resources (e.g., readings, labs, assessments, rubrics). |  |
| 1. Uses varied modes (selected, constructed, project-based, extended response, and performance tasks) of instruction-embedded pre-, formative, summative, peer, and, self-assessment measures of learning. |  |
| 1. Includes editable and aligned rubrics, scoring guidelines, and exemplars that provide guidance for assessing student performance and to support teachers in planning instruction and providing ongoing feedback to students. |  |
| 1. Provides multiple opportunities for students to demonstrate and receive feedback on performance of practices connected with their understanding of concepts. |  |

Presentation and Design:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. The material has an aesthetically appealing appearance. |  |
| 1. Digital and print materials are consistently formatted, visually focused, and uncluttered for efficient use. |  |
| 1. The material has a reasonable and appropriate balance between text and illustration. The material has grade-appropriate font size. |  |
| 1. The illustrations clearly cross-reference the text, are directly relevant to the content (not simply decorative), and promote thinking, discussion, and problem solving. |  |
| 1. Non-text content (performance clips, images, maps, globes, graphs, pictures, charts, databases, and models) are accurate and well integrated into the text. |  |

Technology:

| Standards | Justification: Provide examples from materials as evidence to support each response for this section. Provide descriptions, not just page numbers. |
| --- | --- |
| 1. Technology and digital media support, extend, and enhance learning experiences. |  |
| 1. The material has “platform neutral” technology (i.e., cloud based) and availability for networking. |  |
| 1. The material has a user-friendly and interactive interface allowing the user to control (shift among activities). |  |

For Questions Contact

Content & Curriculum

Idaho State Department of Education

650 W State Street, Boise, ID 83702

208 332 6800 | [www.sde.idaho.gov](http://www.sde.idaho.gov/)

1. [Idaho AFNR Food Science & Processing Technology Program Standards](https://cte.idaho.gov/wp-content/uploads/2019/07/Food-Science-and-Processing-Technology-Standards.pdf) [↑](#footnote-ref-1)