



## Scope and Sequence

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**Cluster:** Hospitality and Tourism

**Course Name:** §130.230 Food Science (One Credit)

**Course Description:**

- (1) Food Science. In Food Science, students conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Food Science is the study of the nature of foods, the causes of deterioration, the principles underlying food processing, and the improvement of foods for the consuming public.
- (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. Food 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.
- (6) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

<b>Course Requirements:</b>		This course is recommended for students in grades 11-12. Prerequisites: three units of science. Recommended prerequisite: Principles of Hospitality and Tourism. 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>Recommended Equipment:</b>		Students must have access to a well-equipped food science laboratory.	
Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
<b>I. Exploring Food Science</b>			
A. History of food science  B. Career opportunities  C. Preparation for a state or national food manager's sanitation certification	(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.	(F) research and describe the history of science and contributions of scientists	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 1</li> <li>• FSTCC</li> <li>• The World of Food Science <a href="http://www.worldfoodscience.org/cms/?pid=0">www.worldfoodscience.org/cms/?pid=0</a></li> </ul>
	(27) The student understands the importance of developing lifelong skills.	(A) demonstrate the use of oral and written communication skills such as writing technical reports, letters, and memos; communicating technical information to a nontechnical audience; and making formal and informal presentations	
(B) define a problem, identify potential causes and possible solutions, and make thoughtful recommendations			
(C) apply critical-thinking skills to new situations			
(D) demonstrate the highest standards of professional integrity and ethical values			
(E) work and interact with individuals from diverse cultures			
(F) explain the skills necessary for lifelong learning			
(G) work effectively with others			
(H) provide leadership in a variety of situations			
(I) deal with individual or group conflicts			

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
		(J) research scientific and nonscientific information (K) competently use library resources (L) manage time effectively (M) facilitate group projects (N) handle multiple tasks and pressures	
<b>II. The Food Science Laboratory</b>			
A. Using laboratory equipment B. Measurement C. The scientific method D. The sensory evaluation	(1) The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices.	(A) demonstrate safe practices during laboratory and field investigations (B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	• FSBFN- Ch. 4 • FSTTIG
	(2) The student uses scientific methods and equipment during laboratory and field investigations.	(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section (B) know that 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	• FSTTIG

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
		<p>(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</p>	
		<p>(D) distinguish between scientific hypotheses and scientific theories</p>	
		<p>(E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology</p>	
		<p>(F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision, using tools and equipment</p>	
		<p>(G) analyze, evaluate, make inferences, and predict trends from data</p> <p>(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</p>	

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
	(3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.	<p>(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</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials</p> <p>(C) draw inferences based on data related to promotional materials for products and services</p> <p>(D) evaluate the impact of scientific research on society and the environment</p> <p>(E) evaluate models according to their limitations in representing biological objects or events</p>	<ul style="list-style-type: none"> <li>• FSBFN- Ch. 6</li> <li>• FSTTIG</li> </ul>

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
<b>III. Fundamentals of Chemistry</b>			
<p>A. Elements, compounds, and mixtures</p> <p>B. Chemical reactions and physical changes</p> <p>C. Water</p> <p>D. Acids and Bases</p> <p>E. Energy</p>	(4) The student analyzes the role of acids and bases in the food sciences.	<p>(A) identify the properties of acids and bases</p> <p>(B) describe the pH scale and how it is used</p> <p>(C) use various indicators to measure the pH of solutions</p> <p>(D) describe the importance of pH in digestion and blood</p> <p>(E) discuss ways pH is related to the properties of food, its safety, and its freshness</p>	<ul style="list-style-type: none"> <li>• CCA</li> <li>• FSBFN-Ch.10</li> <li>• IPC- Ch.16-26</li> </ul>
	(7) The student analyzes solutions, colloids, solids, gels, foams, and emulsions.	<p>(A) identify the solvent and solute in a given solution</p> <p>(B) discuss the effect of a solute and its concentration on the boiling and freezing points of a solution</p> <p>(C) calculate the concentration of a solution using mass percent</p> <p>(D) compare and contrast unsaturated, saturated, and supersaturated solutions</p> <p>(E) describe the properties of colloidal dispersions</p> <p>(F) explain the three parts of an emulsion and their relationship to each other</p>	<ul style="list-style-type: none"> <li>• FSBFN- Ch. 9, 20</li> </ul>

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
<b>IV. Food Chemistry</b>			
A. Enzymes B. Solutions and colloidal dispersions C. Leavening agents D. Fermentation of food E. The biochemistry of milk F. Food additives	(6) The student studies the chemical properties of food.	(A) disuses elements, compounds, mixtures, and formulas (B) explain the Periodic Table of the Elements (C) compare elements and compounds (D) describe heterogeneous and homogeneous mixtures (E) explain the similarities and differences between heterogeneous mixtures and homogenous mixtures (F) identify chemical examples of pure substances and mixtures (G) identify chemical symbols, formulas, and equations and explain how they are used in food science (H) analyze the occurrence of specific chemical reactions (I) analyze chemical and physical changes in food	• FSBFN- Ch. 7,8
	(7) The student analyzes solutions, colloids, solids, gels, foams, and emulsions.	(G) identify various food emulsions and the types of each emulsion	• FSBFN- Ch. 20
	(8) The student understands the functions of enzymes	(A) describe how enzymes act as catalysts in chemical reactions (B) explain the relationship between an enzyme and a substrate (D) identify factors that affect enzyme activity (E) explain how enzyme reactions are involved in food preparation	• FSBFN- Ch.19, 23

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
	(9) The student understands the role of fermentation in food sciences.	(B) list reasons food is fermented	• FSBN- Ch. 22
	(16) The student identifies properties of carbohydrates.	(A) explain the chemical reaction that occurs when plants produce carbohydrates	• FSBN- Ch. 15
		(B) define monosaccharide's and disaccharides and an example of each	
		(D) explain sugar hydrolysis and list the products of the hydrolysis of sucrose and lactose	
		(E) discuss the process of caramelization	
		(F) compare the structures of amylose and amylopectin and how these structures affect cooking properties	
		(G) describe gelatinization, paste, retrogradation, and syneresis	
	(19) The student understands the coagulation and coalescence processes associated with milk protein and cheese.	(A) list the components of milk and explain how each component is dispersed in the milk	• FSBN- Ch. 22
		(B) describe what happens when milk protein is coagulated	
		(C) discuss the processing of milk and how it is treated when it is pasteurized, homogenized, and fortified	
(D) compare and contrast skim milk, low-fat milk, whole milk, half-and-half, and various creams			
(E) explain the differences between evaporated milk, condensed milk, and dried milk			

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
		(F) identify factors that affect the ability of cream to form a foam	
		(G) explain the changes that occur when milk is heated	
		(H) describe the process of making a fermented or cultured milk product and list examples of these products	
	(17) The student describes the properties of fats and lipids.	(A) compare the properties of saturated and unsaturated fatty acids	• FSBN- Ch.16
		(B) identify foods containing triglycerides and identify which foods contain saturated and unsaturated fat	
		(C) discuss the function of fat in food preparation	
		(D) describe ways lipid oxidation can be controlled in food	
		(H) contrast the properties of saturated and unsaturated fats	
		(I) describe the effects of temperature on fats in food preparation	
	(18) The student describes the properties of proteins and amino acids.	(A) name the groups of elements that identify an amino acid	• FSBN- Ch. 17
		(B) describe the chemical structure of protein	
		(C) explain what happens during the denaturation of protein and how the process occurs	
		(D) describe ways in which protein is used in food preparation	
	(E) discuss the composition of eggs and their storage requirements		
	(F) list factors that affect the stability of an egg foam		

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	(21) The student explains the properties of water.	(A) identify the properties of water that make it a polar molecule (B) describe hydrogen bonds and how they differ from covalent bonds (C) discuss the difference between hard and soft water (D) compare the heat of fusion and the heat of vaporization (E) explain the functions of water in food preparation (F) identify the functions of water in the body	<ul style="list-style-type: none"> <li>• FSBN- Ch. 9</li> </ul>
	(22) The student analyzes the food irradiation process.	(A) list the steps in the food irradiation process (B) define the units used to measure the amount of radiation used during the irradiation process (C) describe the effects of irradiation on food	<ul style="list-style-type: none"> <li>• FSBN-Ch. 20</li> <li>• Centers for Disease Control and Prevention <a href="http://www.cdc.gov">www.cdc.gov</a></li> <li>• Food Safety <a href="http://www.foodsafety.gov">www.foodsafety.gov</a></li> <li>• U.S. Food and Drug Administration <a href="http://www.fda.gov/Food/default.htm">www.fda.gov/Food/default.htm</a></li> </ul>

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
<b>V. The Microbiology of Food</b>			
<p>A. Keeping food safe</p> <p>B. Methods of food preservation</p> <p>C. Preservation technology</p>	<p>(5) The student applies the principles of food safety and microbiology.</p>	<p>(A) investigate the properties of microorganisms that cause food spoilage</p> <p>(B) explain the difference between food intoxication and food infection</p> <p>(C) examine the conditions under which the important pathogens are commonly destroyed, inactivated, or rendered harmless in foods</p> <p>(D) discuss the difference between microorganisms that are helpful and those that are harmful</p> <p>(E) analyze sanitary food-handling practices</p>	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 22, 25-28</li> <li>• Institute of Food Science and Technology <a href="http://www.ifst.org">www.ifst.org</a></li> <li>• Centers for Disease Control and Prevention <a href="http://www.cdc.gov">www.cdc.gov</a></li> <li>• Fight Bac <a href="http://www.fightbac.org">www.fightbac.org</a></li> <li>• Food Safety <a href="http://www.foodsafety.gov">www.foodsafety.gov</a></li> <li>• Occupational Safety and Health Administration <a href="http://www.osha.gov">www.osha.gov</a></li> <li>• U.S. Food and Drug Administration <a href="http://www.fda.gov/Food/default.htm">www.fda.gov/Food/default.htm</a></li> <li>• Food and Drug Administration - Food Ingredients Packaging <a href="http://www.fda.gov/Food/FoodIngredientsPackaging/IrradiatedFoodPackaging/ucm135143.htm">www.fda.gov/Food/FoodIngredientsPackaging/IrradiatedFoodPackaging/ucm135143.htm</a></li> <li>• U.S. Food Safety and Inspection Service <a href="http://www.fsis.usda.gov">www.fsis.usda.gov</a></li> </ul>
	<p>(9) The student understands the role of fermentation in food sciences.</p>	<p>(C) describe how bacteria is used to ferment food, including how lactic acid bacteria creates sauerkraut from cabbage</p> <p>(D) compare fresh-pack pickling and brine pickling</p> <p>(E) describe the process of making vinegar</p>	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 26-28</li> <li>• National Center for Home Food Preservation -Pickling <a href="http://www.uga.edu/nchfp/how/can6b_pickle.html">www.uga.edu/nchfp/how/can6b_pickle.html</a></li> </ul>

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	(10) The student understands how leavening agents are used in baking.	(A) describe the purpose of leavening agents in baked goods (B) identify and describe major leavening agents (C) explain why baking soda is used with an acid in baked goods (D) describe the types of dough and batters used in making quick breads (E) analyze the ingredients in baking powder (F) discuss how air and steam act as leavening agents (G) identify the purposes of the ingredients used in making yeast	<ul style="list-style-type: none"> <li>• FSBFN-Chapter 21</li> <li>• FSTTIG</li> </ul>
	(11) The student understands the purposes of additives in food.	(A) discuss the use of food additives (B) describe properties of a desirable food preservative (C) explain why additives used as antioxidants are added to food (D) explain the difference between natural and artificial additives (E) identify kinds of sweeteners used in food processing (F) name nutrients that are used as food additives (G) discuss the advantages and disadvantages of using food additives (H) identify agencies involved in regulating food additives	<ul style="list-style-type: none"> <li>• FSBFN-Ch.24</li> <li>• FSTTIG</li> <li>• Nutrition.gov- Food Additives  <a href="http://www.nutrition.gov/na_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1670&amp;placement_default=0">www.nutrition.gov/na_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1670&amp;placement_default=0</a></li> <li>• U.S. Food and Drug Administration  <a href="http://www.fda.gov/Food/default.htm">www.fda.gov/Food/default.htm</a></li> </ul>

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	(24) The student analyzes the food dehydration process.	(A) describe the principles and purposes of dehydration (B) describe methods of dehydration and explain their similarities and differences (C) explain why food is pretreated before dehydrating (D) compare sulfating, sulfuring, and blanching (E) describe types of blanching that can be used as pretreatment methods (F) discuss the role of air temperature and movement in successful dehydration	<ul style="list-style-type: none"> <li>• FSBN-Ch.26</li> <li>• FSTTIG</li> <li>• National Center for Home Food Preservation- Drying <a href="http://www.uga.edu/nchfp/how/dry.html">www.uga.edu/nchfp/how/dry.html</a></li> </ul>
	(25) The student analyzes the food canning process.	(A) identify safety practices and equipment use in home and commercial canning (B) describe hot-pack, cold-pack, and pressure canning (C) identify advantages and disadvantages of each canning method (D) identify types of foods that should be processed by each canning method (E) compare heat transfer by conduction and by convection in canning	<ul style="list-style-type: none"> <li>• FSBN-Ch. 26</li> <li>• FSTTIG</li> <li>• National Center for Home Food Preservation-Canning <a href="http://www.uga.edu/nchfp/how/can_home.html">www.uga.edu/nchfp/how/can_home.html</a></li> <li>• National Center for Home Food Preservation - Canning FAQ <a href="http://www.uga.edu/nchfp/questions/FAQ_canning.html">www.uga.edu/nchfp/questions/FAQ_canning.html</a></li> <li>• Texas AgriLIFE Extension <a href="http://www.fcs.tamu.edu/">www.fcs.tamu.edu/</a></li> </ul>
	(26) The student analyzes the food freezing process.	(A) list steps of the food freezing process (B) identify factors needed for successful freezing of food (C) identify advantages and disadvantages of freezing food	<ul style="list-style-type: none"> <li>• FSBN-Ch. 28</li> <li>• FSTTIG</li> <li>• National Center for Home Food Preservation- Freezing <a href="http://www.uga.edu/nchfp/how/freeze.html">www.uga.edu/nchfp/how/freeze.html</a></li> </ul>

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	(27) The student understands the importance of developing lifelong skills.	(O) prepare for a state or national food manager's sanitation certification or alternative credential within the field of food science technology	
<b>VI. The Science of Nutrition</b>			
A. Nutrition basics B. Digestion and metabolism C. Nutrients	(8) The student understands the functions of enzymes.	(C) discuss the enzymes involved in digestion	<ul style="list-style-type: none"> <li>• FSBFN-Ch.13, 19</li> <li>• FSTTIG</li> <li>• American Dietetic Association <a href="http://www.eatright.org">www.eatright.org</a></li> <li>• Kids Health <a href="http://www.kidshealth.org">www.kidshealth.org</a></li> <li>• My Pyramid <a href="http://www.mypyramid.gov">www.mypyramid.gov</a></li> <li>• Nutrition <a href="http://www.nutrition.gov">www.nutrition.gov</a></li> <li>• U.S. Department of Agriculture <a href="http://www.usda.gov">www.usda.gov</a></li> <li>• U.S. Food and Drug Administration <a href="http://www.fda.gov/Food/default.htm">www.fda.gov/Food/default.htm</a></li> </ul>
	(9) The student understands the role of fermentation in food sciences.	(A) explain anaerobic respiration and how it is involved in metabolism and food science	• FSBFN-Ch. 22
	(12) The student understands the physiology of digestion.	(A) define mechanical and chemical digestive processes (B) explain the difference between mechanical and chemical digestive processes (C) explain absorption as part of the digestive process	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 13</li> <li>• FSTTIG</li> <li>• Kids Health Digestion <a href="http://www.kidshealth.org/parent/general/body_basics/digestive.html">www.kidshealth.org/parent/general/body_basics/digestive.html</a></li> <li>• Kids Health Metabolism <a href="http://www.kidshealth.org/parent/general/body_basics/metabolism.html">www.kidshealth.org/parent/general/body_basics/metabolism.html</a></li> </ul>

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	(13) The student understands metabolism.	(A) analyze components and by-products of metabolism	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 14</li> <li>• FSTTIG</li> <li>• Kids Health <a href="http://www.kidshealth.org">www.kidshealth.org</a></li> </ul>
		(B) define anabolism and catabolism	
		(C) describe conditions needed for metabolism to occur	
		(D) explain the process of osmosis and the role it plays in metabolism	
		(E) discuss basal metabolism and the factors that affect it	
		(F) identify levels of voluntary activity and how these affect the need for kilocalories	
		(G) describe metabolic changes and the effect they have on the body during fasting	
		(H) explain why lactic acid builds up in the muscles during exercise and how this can be prevented or treated	
	(14) The student explains how food provides energy.	(A) discuss molecular motion and temperature	<ul style="list-style-type: none"> <li>• FSBFN-Ch.14</li> <li>• FSTTIG</li> <li>• Kids Health Metabolism <a href="http://www.kidshealth.org/parent/general/body_basics/metabolism.html">www.kidshealth.org/parent/general/body_basics/metabolism.html</a></li> <li>• My Pyramid <a href="http://www.mypyramid.org">www.mypyramid.org</a></li> </ul>
		(B) explain heat transfer	
		(C) explain latent heat in phase changes	
		(D) compare various temperatures on rates of reaction	
		(E) analyze how the body uses energy and calories	
(F) describe the relationship of energy to physical and chemical reactions			
(G) analyze relationships between food intake and body weight			

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	(15) The student describes the basic nutrients and their specific properties as related to food science.	(A) identify the recommended daily allowances of the basic nutrients (B) list the five main nutrients and food sources of each (C) explain the use of the five main nutrients in relation to the Food Guide Pyramid and/or the Dietary Guidelines (D) discuss the importance of fiber in the diet	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 12</li> <li>• FSTTIG</li> </ul>
	(16) The student identifies properties of carbohydrates.	(C) describe the regulation of glucose in the blood and the conditions resulting from low and high glucose levels	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 15</li> <li>• FSTTIG</li> </ul>
	(17) The student describes the properties of fats and lipids.	(E) describe the functions of fat in the body (F) explain the role of fat in maintaining optimum health (G) explain the role of cholesterol in maintaining optimum health	<ul style="list-style-type: none"> <li>• FSBFN-Ch.16</li> <li>• FSTTIG</li> </ul>
	(18) The student describes the properties of proteins and amino acids.	(G) identify the functions of protein in the body (H) compare and contrast complete and incomplete proteins	<ul style="list-style-type: none"> <li>• FSBFN-Ch.17</li> <li>• FSTTIG</li> </ul>
	(20) The student analyzes the properties of vitamins and minerals.	(A) discuss the functions of vitamins and minerals in the body (B) describe water and fat-soluble vitamins and list the main vitamins in each category (C) explain why megadoses of fat-soluble vitamins can be toxic (D) analyze the food sources for each vitamin and mineral	<ul style="list-style-type: none"> <li>• FSBFN-Ch.18</li> <li>• FSTTIG</li> <li>• Centers for Disease Control and Prevention - Food Irradiation <a href="http://www.cdc.gov/ncidod/DBMD/diseasesinfo/foodirradiation.htm">www.cdc.gov/ncidod/DBMD/diseasesinfo/foodirradiation.htm</a></li> <li>• Nutrition <a href="http://www.nutrition.gov">www.nutrition.gov</a></li> <li>• Nutrition - Vitamin and Minerals <a href="http://www.riley.nal.usda.gov/nal_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1666&amp;placement_default=0">www.riley.nal.usda.gov/nal_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1666&amp;placement_default=0</a></li> </ul>

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		(E) analyze deficiency diseases and explain their causes	
		(F) explain the difference and list examples of major and trace minerals	
		(G) explain the interrelationships among nutrients	
	(23) The student discusses United States Department of Agriculture (USDA) packaging guidelines.	(A) research food packaging guidelines established by the USDA	<ul style="list-style-type: none"> <li>• FSBFN-Ch. 12</li> <li>• U.S. Department of Agriculture <a href="http://www.usda.gov">www.usda.gov</a></li> </ul>
		(B) explain the rationale and purposes of those guidelines	
		(C) describe properties of containers needed for commercial food packaging	
		(D) identify factors related to the successful use of controlled-atmosphere packaging	
		(E) describe information required on a food label	
<b>Resources: Books</b>			
<b>CCA</b>	Chemistry: Concepts and Applications, Glencoe/McGraw-Hill Division, 2002		ISBN: 0078258707
<b>FSBFN</b>	Food Science The Biochemistry of Food and Nutrition, Glencoe/McGraw-Hill Division 2002		ISBN: 0078226031
<b>FSTCC</b>	Food Science and Technology Curriculum Caddy, CEV Multimedia, Ltd, 2004		ISBN: 1569186839
<b>FSTTIG</b>	Food Science and Technology Teacher's Instructional Guide, Curriculum Center for FCS, 2007		<a href="http://www.depts.ttu.edu/hs/ccfcs">www.depts.ttu.edu/hs/ccfcs</a>
<b>IPC</b>	Integrated Physics & Chemistry, School Specialty (Cambridge Physics Outlet), 2002		ISBN: 158892003

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
<b>Resources: Websites</b>			
American Dietetic Association			<a href="http://www.eatright.org">www.eatright.org</a>
Centers for Disease Control and Prevention			<a href="http://www.cdc.gov">www.cdc.gov</a>
Centers for Disease Control and Prevention - Food Irradiation			<a href="http://www.cdc.gov/ncidod/DBMD/diseaseinfo/foodirradiation.htm">www.cdc.gov/ncidod/DBMD/diseaseinfo/foodirradiation.htm</a>
Ethics Resource Center			<a href="http://www.ethics.org">www.ethics.org</a>
Fight Bac			<a href="http://www.fightbac.org">www.fightbac.org</a>
Food Safety			<a href="http://www.foodsafety.gov">www.foodsafety.gov</a>
Institute of Food Science & Technology			<a href="http://www.ifst.org">www.ifst.org</a>
Internet Public Library			<a href="http://www.ipl.org">www.ipl.org</a>
Kids Health			<a href="http://www.kidshealth.org">www.kidshealth.org</a>
Kids Health Digestion			<a href="http://www.kidshealth.org/parent/general/body_basics/digestive.html">www.kidshealth.org/parent/general/body_basics/digestive.html</a>
Kids Health Metabolism			<a href="http://www.kidshealth.org/parent/general/body_basics/metabolism.html">www.kidshealth.org/parent/general/body_basics/metabolism.html</a>
MyPyramid.gov			<a href="http://www.mypyramid.gov">www.mypyramid.gov</a>
Nutrition.gov			<a href="http://www.nutrition.gov">www.nutrition.gov</a>
National Center for Home Food Preservation-Canning			<a href="http://www.uga.edu/nchfp/how/can_home.html">www.uga.edu/nchfp/how/can_home.html</a>
National Center for Home Food Preservation - Canning FAQ			<a href="http://www.uga.edu/nchfp/questions/FAQ_canning.html">www.uga.edu/nchfp/questions/FAQ_canning.html</a>
National Center for Home Food Preservation- Drying			<a href="http://www.uga.edu/nchfp/how/dry.html">www.uga.edu/nchfp/how/dry.html</a>
National Center for Home Food Preservation- Freezing			<a href="http://www.uga.edu/nchfp/how/freeze.html">www.uga.edu/nchfp/how/freeze.html</a>
National Center for Home Food Preservation -Pickling			<a href="http://www.uga.edu/nchfp/how/can6b_pickle">www.uga.edu/nchfp/how/can6b_pickle</a>
Nutrition.gov- Food Additives			<a href="http://www.nutrition.gov/nal_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1670&amp;placement_default=0">www.nutrition.gov/nal_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1670&amp;placement_default=0</a>
Nutrition.gov-Vitamin and Minerals			<a href="http://www.riley.nal.usda.gov/nal_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1666&amp;placement_default=0">www.riley.nal.usda.gov/nal_display/index.php?info_center=11&amp;tax_level=2&amp;tax_subject=388&amp;topic_id=1666&amp;placement_default=0</a>
Occupational Safety and Health Administration			<a href="http://www.osha.gov">www.osha.gov</a>

Units of Study	Knowledge and Skills	Student Expectations	Resources (key on last page)
Texas AgriLIFE Extension	<a href="http://www.fcs.tamu.edu/">www.fcs.tamu.edu/</a>		
The World of Food Science	<a href="http://www.worldfoodscience.org/cms/?pid=0">www.worldfoodscience.org/cms/?pid=0</a>		
U.S. Department of Agriculture	<a href="http://www.usda.gov">www.usda.gov</a>		
U.S. Department of Labor	<a href="http://www.dol.gov">www.dol.gov</a>		
US Department of Labor - Occupational Outlook Handbook	<a href="http://www.bls.gov/oco">www.bls.gov/oco</a>		
U.S. Food and Drug Administration	<a href="http://www.fda.gov/Food/default.htm">www.fda.gov/Food/default.htm</a>		
Food and Drug Administration - Food Ingredients Packaging	<a href="http://www.fda.gov/Food/FoodIngredientsPackaging/IrradiatedFoodPackaging/ucm135143.htm">www.fda.gov/Food/FoodIngredientsPackaging/IrradiatedFoodPackaging/ucm135143.htm</a>		
U.S. Food Safety and Inspection Service	<a href="http://www.fsis.usda.gov">www.fsis.usda.gov</a>		