

Colorado CTE Course – Scope and Sequence

Course Name	Food Science 1		Course Details	65 Class Periods- 45 Minutes Each	
			Course = 0.50 Carnegie Unit Credit		
Course Description	This is a beginning level course which covers a variety of scientific as well as food preparation principles. Units include but are not limited to: career paths, safety and sanitation, food preparation, basic nutrition, and food/product innovation and development. These will be explored through academic text as well as hands on food preparation labs.				
Note:	This is a suggested scope and sequence for the course content. The content will work with any textbook or instructional resource. If locally adapted, make sure all essential knowledge and skills are covered.				
SCED Identification #		Schedule calculation based on 60 calendar days of a 90-day semester. Scope and sequence allows for additional time for guest speakers, student presentations, field trips, remediation, or other content topics.			
All courses taught in an approved CTE program must include Essential Skills embedded into the course content. The Essential Skills Framework for this course can be found at https://www.cde.state.co.us/standardsandinstruction/essentialskills The technical standards for Family and Consumer Sciences are found on the National Administrators for Family and Consumer Sciences website at LEAD FCS NATIONAL STANDARDS					
Instructional Unit Topic	Suggested Length of Instruction (Hours)	CTE or Academic Standard Alignment (Work Based Learning/ CTE Essential Skills)LEAD FCS STANDARDS	Competency / Performance Indicator	Outcome / Measurement	CTSO Integration
Food Safety	9 hours	9.2 Apply risk management procedures to food safety, food testing, and sanitation 9.2.1 Analyze factors that contribute to food borne illness 9.2.4 Use the Hazard Analysis Critical Control Point (HACCP) during all food handling processes (the flow of food) to minimize the risks of food borne illness 9.2.5 Demonstrate practices and procedures that assure personal and workplace health and hygiene	Students will develop a safety plan in order to maintain food HACCP standards while preparing and innovating food.	<ul style="list-style-type: none"> ● Fight Bac ● Temperature Danger Zone ● Lab Regulations ● Sanitation and Safety Procedures ● HACCP ● Lab 	Knife Skills

		9.5.3 Prepare food for presentation and assessment			
Careers in Food Science	6 hours	<p>9.1.1 Explain the roles and functions of individuals engaged in food science, food technology, dietetics, and nutrition career</p> <p>9.1.3 Summarize education and training requirements and opportunities for career paths in food science, food technology, dietetics, and nutrition</p> <p>9.5.3 Prepare food for presentation and assessment</p> <p>CDE Essential Skills: <u>Personal Skills</u> <i>A Colorado graduate demonstrates personal skills through self-awareness, initiative and self-direction, personal responsibility and self-management, adaptability and flexibility, and perseverance and resilience</i></p>	<p>Students will demonstrate understanding of careers related to food science and the skills necessary, and articulate their interest in such careers. Careers will be explored throughout the semester with each unit.</p>	<ul style="list-style-type: none"> ● Agricultural and food scientists ● Agricultural workers ● Dietitians and Nutritionists ● Exercise Physiologists ● Health educators and community health workers ● Fitness Trainers and Instructors ● Bakers ● Butchers ● Food and Tobacco Processing Workers ● Farmers, Ranchers, and Other agricultural managers ● Food service managers ● Food Preparation ● Others as developed 	
Five Areas of Food Science	9 hours	<p>9.5 Demonstrate use of science and technology advancements in food product development and marketing.</p> <p>9.5.3 Prepare food for presentation and assessment</p> <p>CDE Science Standards 2.4 The energy for life primarily derives from the interrelated</p>	<p>Students detail how a food travels from farm to table and the considerations at each stage of the process, related to careers and food safety.</p>	<ul style="list-style-type: none"> ● Production ● Processing ● Preparation ● Evaluation ● Utilization ● Lab 	Sustainability Challenge

		processes of photosynthesis and cellular respiration. Photosynthesis transforms the sun's light energy into the chemical energy of molecular bonds.			
Standardized Recipes and Functions of Ingredients	15 hours	9.6.4 Create standardized recipes 9.5.3 Prepare food for presentation and assessment 9.5.4 Maintain test kitchen/ laboratory and related equipment and supplies	Students will evaluate the role different ingredients perform in a recipe and create an experiment to test how those ingredients can be changed or adapted.	<ul style="list-style-type: none"> ● Leavening Agents ● Gluten ● Binding Agents ● Acids and Bases ● Sweeteners and Sugar ● Herbs and spices ● Additives ● Qualities of good recipes ● Recipe Conversion Factor ● Metric units ● Equipment ● Lab 	Food Innovations
Scientific Method	9 hours	9.5.2 Analyze data in statistical analysis when making development and marketing decisions 9.5.3 Analyze recipe/formula proportions and modifications for food production	Students will be able to create and carry out an experiment that involves changing a product while using observation, hypothesis, variables, data collection, analysis and conclusion to evaluate that product	<ul style="list-style-type: none"> ● Understanding of the scientific method ● Data collection and analysis ● use of the scientific method to create a new product ● Lab 	Food Innovations
Sensory Evaluation	9 hours	9.5.3 Conduct sensory evaluations of food products 9.3.4 Assess the influence of cultural, socioeconomic and psychological factors on food and nutrition and behavior	Students will be able to evaluate a food product from sensory characteristics and articulate what influences would impact a person choosing to eat this food/brand.	<ul style="list-style-type: none"> ● Influences on food choices ● Sensory Characteristics ● Evaluation techniques ● Lab 	

Product Development Innovation	15 hours	<p>9.5.1 Analyze various factors that affect food preferences in the marketing of food to a variety of populations</p> <p>9.5.2 Analyze data in statistical analysis when making development and marketing decisions</p> <p>9.5.3 Prepare food for presentation and assessment</p> <p>CDE Essential Skills: <u>Personal Skills</u> <i>A Colorado graduate demonstrates personal skills through self-awareness, initiative and self-direction, personal responsibility and self-management, adaptability and flexibility, and perseverance and resilience</i></p> <p>CDE Essential Skill- <u>Entrepreneurial Skills</u>: <i>A Colorado graduate demonstrates entrepreneurial skills through critical thinking and problem-solving, creativity and innovation, inquiry and analysis, and risk-taking</i></p>	Students will create a new food product for a target market, implement their product through sensory evaluation, and critique the product for success and viability to the target market.	<ul style="list-style-type: none"> ● 5 D's of Product Development ● Target market defined and analyzed ● Peer Evaluation ● Lab-Prototype ● Revised Final Product (Based on Peer Evaluation, Scientific Method and Sensory Evaluations) 	Food Innovations
--------------------------------	----------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------