Colorado CTE Course – Scope and Sequence

Course Name	Food Science 2	Course Details Course = 0.50 Carnegie Unit Credit	65 Class Periods- 45 Minutes Each
Course Description	This is a continuation of Food Science and Nutrition I with an emphasis on understanding the relationship of food and nutrition to individual health. Students will acquire thorough knowledge of the essential nutrients and their impact on the body. In addition, students will explore the chemistry of food and lab experiences will support class content.		
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 http://www.nasafacs.org/national-standards-and-competencies.html

Instructional Unit Topic	Suggested Length of Instruction	CTE or Academic Standard Alignment	Competency / Performance Indicator	Outcome / Measurement	CTSO Integration
Sensory Evaluation	3.75 hrs	9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 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.	• Review • Lab • Odor Recognition Experiment • Influences on food choices • Sensory Characteristics • Evaluation techniques • Lab	Nutrition and Wellness Sports Nutrition
Scientific Evaluation	3.75 hrs	9.5.2 Analyze data in statistical analysis when	Students will be able to create and carry out an experiment that involves	• Review • Understanding of the Scientific Method	Nutrition and Wellness Sports Nutrition

		making development and marketing decisions 9.5.3 Analyze recipe/formula proportions and modifications for food production	changing a product while using observation, hypothesis, variables, data collection, analysis and conclusion to evaluate that product	• Data collection and analysis • Use of the Scientific Method to create a product that meets dietary needs of an identified client • Lab	
The Science of Nutrition	3.75 hrs	9.4 Apply basic concepts of nutrition and nutrition therapy in a variety of settings, considering social, geographical, cultural, and global influences. CDE Science Standards: 1.2 Matter has definite structure that determines characteristic physical and chemical properties	Students will analyze a diet that has been input into MyFitnessPal (or other dietary analysis program) for fulfillment of dietary guidelines and recommendations.	• Essential Nutrients • MyPlate and USDA Dietary Guidelines • Recommended Dietary Allowances • How to read a food label	Nutrition and Wellness Sports Nutrition
Energy Producers:Protein	7.5 hrs	9.2 Apply risk management procedures to food safety, food testing, and sanitation. 9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices. 9.7 Demonstrate principles of food biology and chemistry.	Students will develop a one day menu that will meet the protein needs for themselves or the client and demonstrate methods of protein preparation.	• Foundational Information • Dietary Applications • Labs--Foams, Emulsifiers, Tenderizing, Protein Structure (Globular Vs. Fibrous), Complete Vs. Incomplete Proteins • Recipe/Menu Analysis	Nutrition and Wellness Sports Nutrition

		CDE Science Standards: 1.6 When energy changes form, it is neither created nor destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases			
Energy Producers: Lipids	7.5 hrs	9.2 Apply risk management procedures to food safety, food testing, and sanitation. 9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices. 9.7 Demonstrate principles of food biology and chemistry. CDE Science Standards: 1.6 When energy changes form, it is neither created nor destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases	Students will compare products made with different lipids and evaluate appearance, texture, and taste. Students will analyze the dietary implications of various lipids (i.e. saturated, unsaturated, trans)	• Foundational Information • Dietary Applications • Lab • Experiment: The Tenderizing Effects of Lipids • Lipid Models • Recipe/Menu Analysis	Nutrition and Wellness Sports Nutrition

Energy Producers: Carbohydrates	7.5 hrs	9.2 Apply risk management procedures to food safety, food testing, and sanitation. 9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices. 9.7 Demonstrate principles of food biology and chemistry. CDE Science Standards: 1.6 When energy changes form, it is neither created nor destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases	Students will analyze the role of simple and complex carbohydrates in food production. Students will analyze the dietary implications of various carbohydrates (complex, simple).	• Foundational Information • Dietary Applications • Lab-Complex and Simple Carbohydrates • Food Blog • Recipe/Menu Analysis	Nutrition and Wellness Sports Nutrition
Water	7.5 hrs	9.2 Apply risk management procedures to food safety, food testing, and sanitation. 9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices.	Students will analyze the role water plays in a healthy lifestyle through comparison of water products and development of a food product to	• Foundational Information • Dietary Applications • Compare and Contrast Various Commercial Water Products • Lab-Dehydration • Food Blog • Recipe/Menu Analysis	Nutrition and Wellness Sports Nutrition

		9.7 Demonstrate principles of food biology and chemistry.			
Energy Releasers: Vitamins & Minerals	7.5 hrs	9.2 Apply risk management procedures to food safety, food testing, and sanitation. 9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices. 9.7 Demonstrate principles of food biology and chemistry.	Students will analyze vitamin and minerals through a smoothie lab (or similar lab) in order to see nutrient density of a product (including recipe lab analysis).	• Foundational Information • Dietary Applications • Lab-Nutritionally Complete Smoothie • Food Blog • Recipe/Menu Analysis	Nutrition and Wellness Sports Nutrition
Metabolism Energy and Heat Transfer	3.75 hrs	9.2 Apply risk management procedures to food safety, food testing, and sanitation. 9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices. 9.7 Demonstrate principles of food biology and chemistry. CDE Science Standards: 1.2 Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that	Students will argue the importance of not skipping meals and eating a balanced diet in order to maintain overall health.	• Foundational Information • Dietary Applications (eating disorders) • Lab- Capsaicin, High Energy Product • Food Blog • Recipe/Menu Analysis • Energy and Heat Transfer	Nutrition and Wellness Sports Nutrition

		can be quantified and experimentally determined CDE Science Standards 2.3 Cellular metabolic activities are carried out by biomolecules produced by organism			
Digestion	3.75 hrs	9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices. 9.7 Demonstrate principles of food biology and chemistry. CDE Science Standards 2.3 Cellular metabolic activities are carried out by biomolecules produced by organisms	Students evaluate the effect a high fiber diet has on the digestive system and overall health.	• Foundational Information • Dietary Applications • Lab- Fiber • Digestive System Model • Food Blog • Recipe/Menu Analysis	Nutrition and Wellness Sports Nutrition
Menu Planning	7.5 hrs	9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices.	Students will develop and analyze a 3-day meal plan for a client that meets the USDA dietary guidelines and individual needs of that client.	• Structure of a Complete Meal Plan • Considerations for Menu Planning • Evaluate and Analyze various menus/ meal plans • Write a comprehensive meal plan for an identified individual.	Nutrition and Wellness

Food Innovations and Product Development	3.75 hrs	9.5 Demonstrate use of science and technology advancements in food product development and marketing. 9.6 Demonstrate food science, dietetics, and nutrition management principles and practices. CDE Essential Skills: Personal Skills *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* *CDE Essential Skill- Entrepreneurial Skills: A Colorado graduate demonstrates entrepreneurial skills through critical thinking and problem-solving, creativity and innovation, inquiry and analysis, and risk-taking*	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.	• Review-5 D's of Product Development • Incorporate Product Development Information and Criteria throughout various Lab experiences • Target market defined and analyzed • Peer Evaluation • Lab-Prototype • Revised Final Product (Based on Peer Evaluation, Scientific Method and Sensory Evaluations	Nutrition and Wellness Sports Nutrition Food Innovations