

# Fort Atkinson School District

## Food Science

Mr. Jeff Agnew / Mr. Steven Merkel / Ms. Shannon Farrell

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<b>CD: Food Science &amp; Emerging Technology</b>			
Lesson Number and Title	WI Ag Ed Standards	WI Model Academic Standards	
<b>UNIT A. INTRODUCTION TO FOOD SCIENCE</b>			
<b>Problem Area 1. The Food Industry</b>			
LC: A1-1	Importance of food Science	AE:A12.2, AE:D12.1	Sci:G12.1, Sci:G12.3, Sci:G12.4
LC: A1-2	Exploring Careers in Food Science	AE:A12.2, AE:D12.1	Sci:A12.5, Sci:G12.1, Sci:G12.4
LC: A1-3	Examining the Food Industry American consumer	AE:D12.2 AE:D12.4	Sci:G12.1, Sci:G12.3, Sci:12.4
LC:A1-4	World and Food production	AE:D12.1, AE:D12.4	Sci:12.3, Sci:H12.1, Sci:H12.2Sci:H12.5
<b>Problem Area 2. Foods - Nutrition and digestion</b>			
LC: A2-1	Explaining Human Nutrition needs	AE:A12.3	Sci:F12.1
LC: A2-2	Describing the Digestive Process	AE:A12.3	Sci:F12.9
LC: A2-3	Determining the Impact of Diet on Health	AE:A12.3	Sci:G12.3
<b>UNIT B. APPLYING CHEMISTRY AND PHYSICS TO FOODS</b>			
<b>Problem Area 1. Food Chemistry</b>			
LC: B1-1	Determining the Chemistry of Water in Foods	AE:D12.5, AE:D12.6	Sci:D12.4, Sci:D12.5, Sci:D12.6
LC: B1-2	Examining the Chemistry of protein in Foods	AE:B12.4, AE:D12.5, AE:D12.6	Sci:F12.9, Sci:F12.11
LC: B1-3	Explaining the Chemistry of Lipids (fats) in Foods	AE:B12.4, AE:D12.5, AE:D12.6	Sci:F12.9, Sci:F12.11
LC: B1-4	Describing the Chemistry of Carbohydrates in Foods	AE:B12.4, AE:12.5, AE:D12.6	Sci:F12.9, Sci:F12.11
LC: B1-5	Discussing the Chemistry of Flavor Enhancing Substances	AE:B12.4, AE:D12.5, AE:D12.6	Sci:D12.4
<b>Problem Area 2. Chemical Additives</b>			
LC: B3-1	Classifying Chemical Food Additives	AE:B12.1, AE:D12.6	Sci:G12.4
LC: B3-2	Explaining Chemical Preservatives	AE:B12.1, AE:D12.6	Sci:G12.4
LC: B3-3	Discussing Laws Related to Food Additives and Food Safety	AE:A12.1, AE:D12.6	Sci:12.3, Sci:H12.3
<b>UNIT C. FOOD MICROBIOLOGY</b>			
<b>Problem Area 1. Microbial Growth</b>			
LC: C1-1	Explaining Microbes and Food Spoilage Caused by Microbial Growth	AE:D12.6	Sci:D12.4, Sci:D12.5, Sci:D12.6
LC: C1-2	Describing the Prevention of Food Spoilage	AE:D12.6	Sci:B12.4
LC: C1-3	Identifying Food-Borne Illnesses and Their Prevention	AE:D12.6	Sci:B12.4
<b>Problem Area 2. Preserving Foods</b>			
LC: C2-1	Using Heat in Food Preservation	AE:B12.4	Sci:D12.4, Sci:D12.6
LC: C2-2	Using Cold in Food Preservation	AE:B12.4	Sci:D12.4, Sci:D12.6
LC: C2-3	Using Drying, Chemical Additives, and Irradiation in Food Preservation	AE:B12.4	Sci:D12.4, Sci:D12.6
LC: C2-4	Using Fermentation	AE:B12.4	Sci:D12.4, Sci:D12.6

<b>UNIT D. HANDLING AND PROCESSING FOOD</b>			
<b>Problem Area 1. Sanitation</b>			
LC: D1-1	Explaining the Importance of Sanitation	AE:D12.6	Sci:F12.8
LC: D1-2	Practicing Personal Hygiene in Food Processing	AE:D12.6	Sci:F12.8
LC: D1-3	Describing the Cleanliness of Processing Equipment	AE:D12.6	Sci:F12.8
LC: D1-4	Maintaining a Clean Processing Plant	AE:D12.6	Sci:F12.8
<b>Problem Area 2. Food Processing Practices</b>			
LC: D2-1	Using Approved Practices in Handling and Processing Dairy Products	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-2	Identifying Dairy Products	AE:D12.4	SS:D12.3
LC: D2-3	Describing Proper Handling of Red Meat	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-4	Identifying Cuts of Meat	AE:D12.4	SS:D12.3
LC: D2-5	Discussing the Processing of Meat	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-6	Handling and Processing Poultry and Eggs	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-7	Handling and Processing Fish and Shellfish	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-8	Processing Cereal Grains	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-9	Identifying Cereal Products	AE:D12.4	SS:D12.3
LC: D2-10	Handling and Processing of Fruits and Vegetables	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-11	Producing Beverages	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-12	Producing Candies and Sweets	AE:D12.4	Sci:D12.4, Sci:D12.5
LC: D2-13	Processing of Fats and Oils	AE:D12.4	Sci:D12.4, Sci:D12.5
<b>Problem Area 3. Handling Food in the Home</b>			
LC: D3-1	Using Safe Methods in Storing Foods in the Home	AE:D12.4	Sci:G12.3, Sci:G12.4
LC: D3-2	Following Safe Methods in Handling and Preparing Foods in the Home	AE:D12.4	Sci:G12.3, Sci:G12.4
<b>UNIT E. FOOD PACKAGING AND LABELING</b>			
<b>Problem Area 1. Packaging</b>			
LC: E1-1	Explaining the Importance of Food Packaging	AE:E12.1	Sci:G12.3, Sci:G12.4
LC: E1-2	Describing the Various Aspects of a Package	AE:E12.1	Sci:G12.3, Sci:G12.4
<b>Problem Area 2. Labeling</b>			
LC: E2-1	Explaining the Importance of a Food Label	AE:F12.1	Sci:A12.2
LC: E2-2	Analyzing the Contents of a Food Label	AE:F12.1	Sci:A12.2, Sci:A12.5
<b>UNIT F. FOOD SAFETY</b>			
<b>Problem Area 1. Food Risks</b>			
LC: F1-1	Determining Risks Associated with Food	AE:E12.5	Sci:G12.3, Sci:G12.4
LC: F1-2	Explaining Potential Carcinogenic Hazards Associated with Food	AE:E12.5	Sci:G12.3, Sci:G12.4
<b>Problem Area 2. Protective Regulations</b>			
LC: F2-1	Identifying Government Agencies that Regulate Food	AE:A12.1	Sci:G12.3

<b>UNIT G. ECONOMICS AND FOOD</b>			
<b>Problem Area 1. Consumers</b>			
LC: G1-1	Comparing Food Preferences by Income and Culture	AE:F12.1, AE:F12.2	Sci:A12.2, Sci:A12.5
LC: G1-2	Determining the Market for Organically Produced Foods	AE:F12.1, AE:F12.2	Sci:B12.3, Sci:G12.4, Sci:A12.6, Sci:E12.4
LC: G1-3	Explaining the Development Process of New Food Products	AE:F12.1, AE:F12.2	Sci:A12.6, Sci:G12.4, Sci:B12.4
LC: G1-4	Describing the Marketing of Foods	AE:F12.1, AE:F12.2	Sci:G12.3, Sci:G12.4, Sci:E12.4
<b>Problem Area 2. Governments</b>			
LC: G2-1	Assessing the Role of Governments in Food Economics	AE:A12.1	Sci:A12.1, Sci:A12.5, Sci:B12.4, Sci:E12.4
LC: G2-2	Associating Food Economics with Economic Development	AE:A12.1	Sci:A12.1, Sci:A12.5, Sci:B12.4
<b>UNIT H. ISSUES IN FOOD SCIENCE</b>			
<b>Problem Area 1. Biotechnology</b>			
LC: H1-1	Using Genetic Engineering with Foods	AE:D12.5, AE:D12.6	Sci:G12.3
LC: H1-2	Debating the Pros and Cons of Genetically Modified Foods	AE:D12.5, AE:D12.6	Sci:A12.2, Sci:G12.3, Sci:A12.4, Sci:A12.6, Sci:B12.4
<b>Problem Area 2. World Hunger</b>			
LC: H2-1	Analyzing the Supply of Food for an Increasing World Population	AE:A12.2, AE:A12.3	Sci:G12.1, Sci:G12.5, Sci:G12.1, Sci:F12.8
LC: H2-2	Exploring Future Food Products	AE:A12.2, AE:A12.3	Sci:B12.3, Sci:A12.4, Sci:G12.1
LC: H2-3	Addressing Environmental Concerns Related to Food Production and Processing	AE:E12.1, AE:E12.6	Sci:E12.4, Sci:G12.5, Sci:F12.8
<b>UNIT I. FFA, SAE, AND FOOD SCIENCE</b>			
<b>Problem Area 1. Core FFA Concepts</b>			
LC: I1-1	Origins of Organizations	AE:C12.1, AE:C12.2, AE:C12.3, AE:C12.4	SS:E12.4, SS:E12.5, SS:E12.6
LC: I1-2	How Organizations Express Beliefs, Values, and Direction	AE:C12.1, AE:C12.2, AE:C12.3, AE:C12.4	SS:E12.4, SS:E12.5, SS:E12.6
LC: I1-3	How Organizations Create Culture, Brand, and Traditions	AE:C12.1, AE:C12.2, AE:C12.3, AE:C12.4	SS:E12.4, SS:E12.5, SS:E12.6
LC: I1-4	How Organizations Change	AE:C12.1, AE:C12.2, AE:C12.3, AE:C12.4	SS:E12.4, SS:E12.5, SS:E12.6
LC: I1-5	How Organizations Are Structured	AE:C12.1, AE:C12.2, AE:C12.3, AE:C12.4	SS:E12.4, SS:E12.5, SS:E12.6
<b>Problem Area 2. FFA and Food Science</b>			
LC: I2-1	Partnering with Organizations in Food Science and Technology	AE:C12.4	SS:E12.6

LC: I2-2	Leadership Opportunities in Food Science Through FFA	AE:C12.4	SS:E12.15
LC: I2-3	Career Opportunities in Food Science Through FFA	AE:C12.4	Sci:A12.5,SciG12.1,Sci:G12.4
LC: I2-4	Community Outreach Food Science Projects for FFA Chapters	AE:C12.4	SS:C12.10
<b>Problem Area 3. Core SAE Concepts</b>			
LC: I3-1	Understanding SAEs	AE:F12.3	FL:A12.1
LC: I3-2	Planning SAEs	AE:F12.3	FL:B12.3
LC: I3-3	Managing SAEs	AE:F12.3	FL:D12.5
LC: I3-4	Evaluating SAEs	AE:F12.3	FL:D12.5
LC: I3-5	Teaching Others about SAEs	AE:F12.3	FL:D12.5
LC: I3-6	Developing Innovative SAEs	AE:F12.3	FL:D12.5
<b>Problem Area 4. SAE and Food Science and Technology</b>			
LC: I4-1	Developing Food Science and Technology Career Skills	AE:F12.4	FL:F12.1, FL:F12.2, FL:F12.3, FL:F12.4, FL:F12.5
LC: I4-2	SAE Opportunities in Food Science and Technology—Entrepreneurship and Placement	AE:F12.4	FL:F12.1, FL:F12.2, FL:F12.3, FL:F12.4, FL:F12.5
LC: I4-3	SAE Opportunities in Food Science and Technology—Agriscience and Agribusiness	AE:F12.4	FL:F12.1, FL:F12.2, FL:F12.3, FL:F12.4, FL:F12.5
LC: I4-4	Awards to Recognize Outstanding SAE's in Food Science	AE:F12.4	FL:F12.1, FL:F12.2, FL:F12.3, FL:F12.4, FL:F12.5