

Goodheart-Willcox Publisher Correlation of <i>Principles of Food Science</i> ©2015 to South Carolina Department of Education Science, Technology, Engineering, and Mathematics Course Food Science and Dietetics I	
ACADEMIC STANDARD / INDICATOR	CORRELATING PAGES
INTRODUCTION TO FOOD SCIENCE AND DIETETICS	
Identify the components of the scientific method.	30–61
1. Identify the steps in the scientific method. 2. Analyze a product employing the appropriate direct instruments. 3. Operate indirect instruments. 4. Demonstrate precision in technology.	
Analyze the relationship between food science and dietetics.	4–29, 231
1. Summarize the history of food science and dietetics. 2. Identify the major components of food science. 3. Explain the importance of dietetics and nutrition.	
Investigate career paths within food science and dietetics.	2–3, 88–89, 208–209, 366–367, 490–491, 570–571, 668–669, 758–783, 810–813
1. Identify various career opportunities in food science and dietetics. 2. Explore the advantages of joining a professional organization. 3. Develop an employment portfolio.	
LABORATORY AND FOOD SAFETY	
Evaluate laboratory and food safety practices.	35–51, 175, 240, 267, 455, 484, 486, 488, 522, 524, 528, 535–559
1. Incorporate safe use of lab equipment. 2. Integrate safe lab techniques and procedures. 3. Implement sanitation practices in the lab. 4. Summarize information regarding food borne illnesses as a health issue for individuals, families, and the global community. 5. Analyze how OSHA, DHEC, and other governmental agencies’ regulatory codes protect	

the nation's food supply. 6. Identify food codes relevant to specific laboratory practices.	
ENERGY AND METABOLISM	
Explore the types of energy used in the food industry.	116–145
1. Distinguish between the types of energy. 2. Differentiate the forms of energy used in the food industry. 3. Observe and critique how energy is transformed to another form of energy.	
FOOD CHEMISTRY	
Analyze the physical properties of matter and chemical reactions.	90–115
1. Identify the physical properties of matter. 2. Explain how atoms, molecules, and compounds relate to food items. 3a. Explain how phase changes are examples of reversible physical change. 3b. Describe how chemical changes are illustrated by chemical equations.	
Summarize the basic properties of foods.	178–489, 785–798
1. Summarize the purposes and functions of carbohydrates, lipids, and proteins. 2. Explain the metabolic pathways and their chemical reactions. 3. Analyze relationships between food intake and body weight. 4. Summarize the properties and uses of water. 5. Identify the properties of vitamins and minerals in foods. 6. Summarize the purpose of acids and bases in food. 7. Justify the use of additives in foods. 8. Summarize enzyme reactions in the body and in food.	



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FOOD PRODUCTION	
Analyze the correlation between food production, processing, packaging, and marketing in the food industry.	30–87, 492–667, 739–749
<ol style="list-style-type: none">1. Explain the relationship between food production and processing.2. Identify nonliving conditions that can affect microbial growth on foods.3. Identify products with probiotics.4. Identify packaging and marketing strategies (i.e. sugar coated cereals that are placed at a child's eye level in the grocery store).5. Explore sensory evaluation.6. Incorporate the metric system of measurement in laboratory procedures.7. Identify the different types of preservatives and their role in food-processing.8. Explain how the different types of packing protect food.9. Compare and contrast hot and cold processing.10. Research the changes of products and processing over time.	

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ACADEMIC STANDARD / INDICATOR	CORRELATING PAGES
SAFETY AND SANITATION	
Evaluate safety and sanitation procedures.	35–51, 175, 240, 267, 455, 484, 486, 488, 522, 524, 528, 535–559
1. Qualify for food safety and sanitation certification. 2. Demonstrate safe use of lab equipment. 3. Integrate safe lab techniques and procedures. 4. Implement sanitation practices in the lab, home, organizational systems, and the larger environment.	
Determine the economic and ethical advantages and disadvantages of using biotechnology.	16–17, 326, 652–661
1. Discuss the benefits and/or threats of biotechnology to the world’s food supply. 2. Identify the epidemiological studies associated with life experiences.	
SCIENTIFIC METHODS	
Demonstrate scientific method procedures.	30–61, 24–29, 54–61, 80–87, 110–115, 138–145, 170–177, 202–207, 236–241, 262–269, 296–301, 330–337, 360–365, 394–399, 424–431, 450–457, 484–489, 520–529, 562–569, 598–603, 624–631, 662–667, 696–701, 722–729, 750–757, 778–783
1. Analyze scientific methods used and factors involved in the processing of foods. 2. Explain why accurate scientific measurements are required for scientific investigations. 3. Implement the scientific method and science process skills (hypothesis and theory) through research design. 4. Interpret, analyze, and report data.	
BIOORGANIC CHEMISTRY	
Analyze the metabolic impact of nutrients on the body.	146–177, 209–431, 604–631
1. Differentiate the functions of the macro- and micronutrients. 2. Analyze enzyme reactions in foods.	

3. Describe the functions of acids and bases in foods. 4. Explain the effect of hydrolysis and dehydration synthesis.	
FOOD PRODUCTION	
Evaluate various methods of food processing and preservation.	572–667
1. Compare dehydration methods. 2. Explore methods used to freeze foods. 3. Demonstrate canning techniques. 4. Explain irradiation practices on foods.	
Analyze the advantages and disadvantages of microbes.	492–569
1. Identify the characteristics of microbes. 2. Describe the effects of microbes on food. 3. Explain the effects of microbes in fermentation process. (i.e. soy sauce, yogurt, etc.) 4. Differentiate the types of pasteurization used in food productions. 5. Differentiate the types of food borne illnesses. 6. Describe the ways pathogens enter food supplies.	
CAREERS IN FOOD SCIENCE AND DIETETICS	
Analyze career paths in food science and dietetics.	758–783, 806–825
1. Demonstrate knowledge, skills, and practices required for careers in food science and dietetics. 2. Identify co-curricular student organizations related to food science and dietetics. 3. Analyze professional organizations related to food science and dietetics. 4. Maintain an employment portfolio.	