

PRESCOTT UNIFIED SCHOOL  
DISTRICT District Instructional  
Guide

<b>School:</b> Prescott High School	<b>Grade Level:</b> 9-12	<b>Subject:</b> Food Science	<b>Quarter!Semester:</b> 111	<b>Core text:</b> <i>Food Science: The Biochemistry of Food and Nutrition</i>
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<b>Time Block</b>	<b>Unit ! Theme</b>	<b>Content (Nouns)</b>	<b>Skills (Verbs)</b>	<b>Standards</b> S Science CCR Core Reading WP Workplace Skill	<b>Assessments ! Benchmarks</b>
1 week	The World of Food Science	What Is Food Science?	Trace the development of the scientific study of food science. Describe areas included in the field of food science. Identify different types of work that food scientists do.	<b>S</b> S2, C1, PO1-4 <b>CCR</b> 2,5,7 <b>WP</b> 1,2,3,4,5,6,7,9	Completion of Assigned Work (ie, study guides, math & science connections, terms chapter headings {THIEVES}) Ch 1 written test Student portfolio up-to-date.
1 week	The World of Food Science	Why Study Food Science?	Describe personal benefits of studying topics in food science. Describe contributions of food science to increasing food supplies. Explain the role of food science in preserving the environment. Explain contributions of food science to nutrition and food safety. Relate food science to social change and technological advances.	<b>S</b> S2, C1, PO1-4 S3, C1, PO 3&4 C3, PO1&3 <b>CCR</b> 2,5,7 <b>WP</b> 1,2,3,4,5,6,7,9	Completion of Assigned Work (ie, study guides, math & science connections, terms chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 2 written test Student portfolio up-to-date.

1 week	The Food Science Lab	Using Laboratory Equipment	<p>Choose laboratory Equipment that is suited for specific tasks.</p> <p>Demonstrate proper use and maintenance of laboratory equipment.</p> <p>Demonstrate techniques for working safely in a food science laboratory.</p>	<p><b>S</b> S1, C1,2 <b>CCR</b> 2,5,7 <b>WP</b> 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 3 written test</p> <p>Student portfolio up-to-date.</p>
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1 week	The Food Science Lab	Measurement	Demonstrate how to make accurate and precise laboratory measurements. Distinguish between metric units. Compare temperatures on Celsius and Fahrenheit scales. Demonstrate techniques for taking readings.	<b>s</b> C2 <b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 4 written test Student portfolio up-to-date.
1 week	The Food Science Lab	The Scientific Method	Describe in order the steps in the scientific method Demonstrate completing a data table and report form. Distinguish between a hypothesis and a scientific theory.	<b>s</b> S1, C1, PO 1-4 C2, PO 1-5 C3, PO 1-4 C4, PO 1 <b>CCR 2.5.7</b> <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 5 written test Student portfolio up-to-date.
1 week	The Food Science Lab	The Sensory Evaluation of Food	Explain how various influences affect food choices. Describe sensory characteristics of food. Explain the relationship between sensory characteristics and nutrition.	<b>s</b> S1, C3, PO 1 C4, PO 1 - 4 S3 C3, PO1  <b>CCR 2,4,7</b>  <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 6 written test Student portfolio up-to-date.
2 weeks	Chemistry Fundamentals	Elements, Compounds and Mixtures	Explain the difference between physical and chemical properties. Distinguish between pure substances and mixtures. Explain the relationship between elements and compounds. Compare heterogeneous and homogeneous mixtures. Identify chemical symbols and formulas.	<b>s</b> S5, C1, PO 1-4  <b>CCR 2,5,7</b>  <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 7 written test Student portfolio up-to-date.
1 week	Quarter One Review			All standards taught thus far	Quarter One Mid Term Exam covering chapters 1 - 7.



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<b>Time Block</b>	<b>Unit ! Theme</b>	<b>Content (Nouns)</b>	<b>Skills (Verbs)</b>	<b>Standards</b> S Science CCR Core Reading WP Workplace Skill	<b>Assessments ! Benchmarks</b>
2 weeks	Chemistry Fundamentals	Chemical Reactions and Physical Changes	Compare chemical reactions to physical changes. Compare parts of an atom. Identify parts of a chemical equation. Distinguish between reversible and irreversible reactions and changes.	S S 5, C 4, PO 2,3,4,5  <b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 8 written test Student portfolio up-to-date.
1 week	Chemistry Fundamentals	Water	Relate water's composition and structure to its properties. Compare bonds in water. Explain the effect of air pressure changes on boiling point. Explain sublimation and surface tension. Explain the functions of water in food preparation. Describe hard and soft water. Describe how the body uses water.	S S 6, C 1, PO 5, 6  <b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 9 written test Student portfolio up-to-date.

1 week	Chemistry Fundamentals	Acids and Bases	Explain the qualities of acids and bases. Compare the acidity of	S S 5, C 4, PO 12	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings
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			<p>substances, using the pH scale and pH indicators.</p> <p>Compare the general qualities of acids and bases in foods.</p> <p>Explain the importance of pH to physical health.</p>	<p><b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b></p>	<p>{THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 10 written test</p> <p>Student portfolio up-to-date.</p>
1 week	Chemistry Fundamentals	Energy	<p>Compare units of heat measure.</p> <p>Describe the relationship between molecular motion and temperature.</p> <p>Compare processes of heat transfer.</p> <p>Explain what affects rates of chemical reaction in food. Analyze the relationship between food intake and body weight.</p>	<p>S S 4, C 5, PO 1 S 5, C 3, PO 7 C 5, PO 1, 6</p> <p><b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b></p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 11 written test</p> <p>Student portfolio up-to-date.</p>
1 week	The Science of Nutrition	Nutrition Basics	<p>Identify and briefly describe essential nutrients.</p> <p>Explain how different nutritional guidelines are formulated and used.</p> <p>Choose healthful foods according to the Dietary Guidelines for Americans.</p> <p>Demonstrate how to use food labels to compare nutrients in foods.</p> <p>Plan healthful meals using My Pyramid.</p> <p>Relate the understanding of nutrition to physical well-being.</p>	<p>Food Science, Dietetics and Nutrition 9.3</p> <p><b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b></p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 12 written test</p> <p>Student portfolio up-to-date.</p>

1 week	The Science of Nutrition	Digestion	Identify in order the parts of the alimentary canal. Describe the processes that take place in each part of the digestive tract. Explain the function of enzymes in digestion. Explain how nutrients are absorbed.	<b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports Chapter 13 written test Student portfolio up-to-date.
1 week	The Science of Nutrition	Metabolism	Explain the purpose of metabolism and the conditions needed for it to occur. Explain the role of energy in metabolism. Explain the process that stores and transfers energy in the body. Explain how cells maintain chemical balance. Relate basal metabolism and volunteer activity to energy needs. Evaluate weight loss diets and exercise habits in relation to metabolism and health.	S S 4, C 1  <b>CCR 2,5,7</b> <b>WP 1,2,3,4,5,6,7,9</b>	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports Chapter 14 written test Student portfolio up-to-date.
1 week	Final Exam			All standards taught thus far	Final Exam



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<b>Time Block</b>	<b>Unit ! Theme</b>	<b>Content (Nouns)</b>	<b>Skills (Verbs)</b>	<b>Standards</b> S Science CCR Core Reading WP Workplace Skill	<b>Assessments ! Benchmarks</b>
2 weeks	The Science of Nutrition	Carbohydrates	Explain the chemical reaction by which plants produce carbohydrates Describe the properties of sugars. Discuss caramelization. Contrast healthy blood glucose regulation to the complications of diabetes.	<b>S</b> S1,C1, PO 1 C4, PO 3 S4, C5, PO 2  <b>CCR 2,5,7</b> <b>WP</b> 1,2,3,4,5,6,7,9	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 15 written test Student portfolio up-to-date.
2 weeks	The Science of Nutrition	Lipids	<b>SWBAT:</b> Explain the three categories of lipids. Describe how fatty acids form triglycerides. Compare the structure of saturated and unsaturated fat. Explain the relationship between cholesterol and heart disease. Develop an eating plan that keeps dietary lipids within healthful levels.	<b>S</b> S1,C1, PO 1 C4, PO 3 S4, C5, PO 2  <b>CCR 2,5,7</b> <b>WP</b> 1,2,3,4,5,6,7,9	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 16 written test Student portfolio up-to-date.

2 weeks	The Science of Nutrition	Protein	Describe the chemical structure of protein. Explain how amino acids	<b>S</b> S1,C1, PO 1 C4, PO 3	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings)
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			<p>link to form polypeptide bonds.</p> <p>Relate the processes of denaturation and coagulation to the uses of proteins in cooking.</p> <p>Compare proteins found in different foods.</p> <p>Explain the relationship between egg proteins and storage.</p> <p>Describe different functions of protein in the body.</p> <p>Evaluate foods as sources of dietary protein.</p>	<p>S4, C5, PO 2</p> <p><b>CCR 2,5,7</b></p> <p><b>WP</b></p> <p>I,2,3,4,5,6,7,9</p>	<p>{THIEVES}}</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 17 written test</p> <p>Student portfolio up-to-date.</p>
2 weeks	The Science of Nutrition	Vitamins and Minerals	<p>Explain in general how vitamins and minerals function in the body.</p> <p>Explain specific contributions of different vitamins and minerals.</p> <p>Evaluate foods as sources of various vitamins and minerals.</p> <p>Relate vitamin and mineral deficiencies to the diseases that result.</p>	<p><b>s</b></p> <p>SI, CI, PO I</p> <p>C4, PO 3</p> <p>S4,C5, PO 2</p> <p><b>CCR 2,5,7</b></p> <p><b>WP</b></p> <p>I,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 18 written test</p> <p>Student portfolio up-to-date.</p>
I Week	The Chemistry of Food	Enzymes	<p>Explain the function of enzymes as catalysts in chemical reactions.</p> <p>Compare the functions and activities of enzymes and coenzymes.</p> <p>Explain how enzymes are used in digestion.</p> <p>Explain how enzyme reactions are involved in food preparation.</p>	<p><b>s</b></p> <p>SI, CI, PO I</p> <p><b>CCR 2,5,7</b></p> <p><b>WP</b></p> <p>I,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 19 written test</p> <p>Student portfolio up-to-date.</p>
I week	The Chemistry of Food	Solutions and Colloidal Dispersions	<p>Describe the properties of solutions and colloidal solutions.</p>	<p><b>s</b></p> <p>SI, CI, PO I</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings</p>



			Identify and describe three colloidal dispersions. Use examples to explain how solutions and colloidal dispersions exist as food.	<b>CCR 2,5,7</b> <b>WP</b> 1,2,3,4,5,6,7,9	{THIEVES}) Participation in assigned labs and completed lab reports. Ch 20 written test Student portfolio up-to-date.
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Time Block	Unit ! Theme	Content (Nouns)	Skills (Verbs)	Standards	Assessments ! Benchmarks
1 ½ weeks	The Chemistry of Food	Leavening Agents	<p>Explain the purpose of leavening agents in food</p> <p>Identify natural leavening agents and describe how they work</p> <p>Explain the chemical process by which baking soda and baking powder leaven baked goods.</p> <p>Describe the role of yeast in leavening.</p>	<p>S S1,C1, PO 1 C4, PO 3 S4, C5, PO 2</p> <p>CCR 2,5,7 WP 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports. &lt;cream puffs&gt;</p> <p>Ch 21 written test</p> <p>Student portfolio up-to-date.</p>
1 week	The Chemistry of Food	The Fermentation of Food	<p>Explain why food is fermented.</p> <p>Compare respiration in human metabolism to anaerobic respiration in food science.</p> <p>Describe how yeast fermentation works in bread making.</p>	<p>S S1,C1, PO 1 C4, PO 3 S4, C5, PO 2</p> <p>CCR 2,5,7 WP 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports. &lt;pizza&gt;</p> <p>Ch 22 written test</p> <p>Student portfolio up-to-date.</p>
1 week	The Chemistry of Food	The Biochemistry of Milk	<p>Identify the components of milk and describe how they are dispersed in milk.</p> <p>Describe how milk is processed and the effects of pasteurizing, homogenizing, and fortifying milk.</p> <p>Distinguish the characteristics of various milk products.</p> <p>Explain how milk and milk products should be stored.</p>	<p>S S1,C1, PO 1 C4, PO 3 S4, C5, PO 2</p> <p>CCR 2,5,7 WP 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 23 written test</p> <p>Student portfolio up-to-date.</p>
1 week	The Chemistry of Food	Food Additives	<p>SWBAT:</p> <p>Identify common food additives and their uses.</p> <p>Compare natural and synthetic additives.</p> <p>Explain how additives are regulated.</p> <p>Describe how additives make foods more appealing.</p> <p>Describe how additives aid food processing.</p> <p>Evaluate the pros and cons of using food additives.</p>	<p>S S1,C1, PO 1 C4, PO 3 S4, C5, PO 2</p> <p>CCR 2,5,7 WP 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES})</p> <p>Participation in assigned labs and completed lab reports.</p> <p>Ch 24 written test</p> <p>Student portfolio up-to-date.</p>

1 week	The Microbiology of Food Processing	Keeping Food Safe	SWBAT: Name and describe microorganisms that cause food spoilage.	S S1,C1, PO 1 C4, PO 3	Completion of Assigned Work (ie, study guides, math & science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab
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			<p>Differentiate between food intoxication and food infection.</p> <p>Identify sources and symptoms of foodborne illnesses.</p> <p>Explain the role of various government agencies that keep the food supply safe.</p> <p>Demonstrate steps to prevent the spread of foodborne illness.</p> <p>Assess the safety of food preparation methods.</p>	<p><b>CCR</b> 2,5,7 <b>WP</b> 1,2,3,4,5,6,7,9</p>	<p>reports. Ch 25 written test Student portfolio up-to-date.</p>
1 week	The Microbiology of Food Processing	The Dehydration of Food	<p><b>SWBAT:</b></p> <p>List benefits of dehydrated food.</p> <p>Describe the role of air temperature and circulation in dehydration.</p> <p>Explain how pretreating foods improves dehydration.</p> <p>Describe different methods of dehydration.</p>	<p>S S1,C1, PO 1 C4, PO 3</p> <p><b>CCR</b> 2,5,7 <b>WP</b> 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 26 written test Student portfolio up-to-date.</p>
1 week	The Microbiology of Food Processing	The Canning of Food	<p><b>SWBAT:</b></p> <p>Explain the purpose of different equipment used in home and commercial canning.</p> <p>Explain why different foods require different methods of processing. Describe the role of convection and conduction in canning.</p> <p>Compare different commercial canning methods.</p> <p>Explain how to avoid <i>C. botulinum</i> poisoning.</p> <p>Summarize ways to make canned foods part of a healthful diet.</p>	<p>S S1,C1, PO 1 C4, PO 3</p> <p><b>CCR</b> 2,5,7 <b>WP</b> 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 27 written test Student portfolio up-to-date.</p>
1 week	The Microbiology of Food Processing	Food Preservation and Technology	<p><b>SWBAT:</b></p> <p>Explain how irradiation preserves foods.</p> <p>Assess arguments for and against irradiation.</p> <p>Evaluate the suitability of containers for commercial food packaging.</p> <p>Compare modified-atmosphere packaging with aseptic packaging.</p>	<p>S S1,C1, PO 1 C4, PO 3</p> <p><b>CCR</b> 2,5,7 <b>WP</b> 1,2,3,4,5,6,7,9</p>	<p>Completion of Assigned Work (ie, study guides, math &amp; science connections, terms, chapter headings {THIEVES}) Participation in assigned labs and completed lab reports. Ch 28 written test Student portfolio up-to-date.</p>