KIRKWOOD
SCHOOL DISTRICT

Art and Science of Foods II

Approved by KSD Board of Education: (May 2017)

Course Description:
Art & Science of Foods 2 is a course that offers authentic opportunities for students to investigate the principles of food preparation as they continue to build a foundation to become self-sufficient in accessing healthy foods in the kitchen. Students will engage in the engineering design process as a framework to motivate interdisciplinary thinking, inspire future exploration and provide real life connections for the students to utilize in their learning.

Grade Level: Grades 9th-12th (0.5 Credits)

Unit Scope and Sequence

Unit 1: Throwback: A Day in the Kitchen
Unit 2: The Good, The Bold, and The Tasty
Unit 3: Students by Day, Saucier by Night
Unit 4: Magnificence of Meat
Unit 5: Basics of Baking: Putting the Fluff in your Stuff

Course Enduring Understandings:

- Procedures prevent accidental injury in the kitchen.
- Basic principles of preparation when using herbs, spices, stocks, sauces, soups, meat, poultry, and baked products. The art of cooking requires skills and knowledge.
- Mothers sauces lead to sister sauces, all of which can enhance the flavor and appearance of other foods.
- Seasoning foods makes them more enjoyable to the pallet.
- Meat and poultry can be cooked using a variety of methods depending upon meat type.
- Empathy is essential to understanding and being able to add value to our ever-changing world.

Course Essential Questions:

- What actions can a person take to be safe in the kitchen?
- What are the basic principles of preparation for stocks, sauces, soups, meat, poultry, and baked products?
- How can seasoning enhance the flavor of foods?
- What are the methods used to thicken a liquid?
- How do I determine which cooking method to use for meat?
- What are the functions of the different items that go into a baked products?
- Why is empathy important?

Art and Science of Foods II
Unit 1: Throwback: A Day in the Kitchen

The art and science of cooking requires skill and knowledge. Students will expand upon conditions and practices that promote kitchen safety, food sanitation principles, and preparation techniques when planning and preparing food products. The design thinking process will be introduced as a framework to motivate interdisciplinary thinking, inspire future exploration and provide real life connections for the students to utilize their learning.

Unit Essential Learning Targets

Enduring Understandings	***Essential Questions***
• The art of cooking requires skill and knowledge.	• What actions can a person take to be safe in the kitchen? • Why is sanitation important? • What impact does measuring have on cooking and baking recipes? • Why is it important to measure accurately? • Why is it important to know the difference between moist and dry cooking techniques?
Students must know:	***Students must be able to:***

• Safety is taking the necessary precautions in order to prevent danger, risk or injury.
• Sanitation is maintaining clean conditions to prevent disease and promote good health.
• Appropriate measuring equipment, techniques, and tools for food preparation.
• Proper techniques that are used to measure ingredient quantities.
• Commonly used basic equivalents:
  ○ 3 tsp = 1 Tbsp
  ○ 16 Tbsp = 1 cup
  ○ 8 oz = 1 cup
  ○ 1/2 cup = 8 Tbsp = 1 stick of butter
  ○ 16 oz = 1lb
• Vocabulary: safety, sanitation, danger zone, pack, level, heaping, misé en place, moist cooking techniques, dry cooking techniques
	• Demonstrate safe and sanitary kitchen procedures.
	• Demonstrate proper measuring techniques of various ingredients.
	• Identify appropriate measuring equipment and techniques for dry and liquid ingredients.
	• Determine proper techniques to effectively prepare food products.
	• Identify appropriate measuring equipment and techniques
	• Utilize measurement tools to demonstrate knowledge of portion control and measurement techniques.

Art and Science of Foods II
Unit 1: Throwback: A Day in the Kitchen

Missouri Learning Standards

Demonstrate food safety and sanitation procedures (8.2).
Supporting Standards:

- Identify characteristics of major foodborne pathogens, their role in causing illness, foods involved in outbreaks, and methods of prevention (8.2.1).
- Practice standard personal hygiene and wellness procedures (8.2.5).
- Demonstrate safe food handling and preparation techniques that prevent cross contamination from potentially hazardous foods and food groups 8.2.7).

Demonstrate professional food preparation methods and techniques for all menu categories to produce a variety of food products that meet customer needs (8.5)
Supporting Standards:

- Demonstrate professional skills in safe handling of knives, tools, and equipment (8.5.1).
- Demonstrate knowledge of portion control and proper scaling and measurement techniques (8.5.3).

Apply risk management procedures to food safety, food testing, and sanitation (9.2)
Supporting Standards:

- Analyze factors that contribute to food borne illness (9.2.1)
- 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 (9.2.4).
- Demonstrate practices and procedures that assure personal and workplace health and hygiene (9.2.5).
- Demonstrate standard procedures for receiving, storage, and preparation of raw and prepared foods (9.2.6).

Art and Science of Foods II
Unit 2: The Good, the Bold, and the Tasty

Students learn the different varieties of herbs and spices (fresh and dry) and demonstrate the principles of effective use of ingredients for enhancing flavor.

Unit Essential Learning Targets	
Enduring Understandings	***Essential Questions***
• Herbs and spices vary in flavor added. • Fresh and dry herbs and spices vary in potency. • There are unlimited combinations used to flavor foods. • Season profiles reflect the country of origin.	• How does combining herbs and spices lend different flavor outcomes? • How do I vary the amounts of herbs and spices used depending upon the yield? • How can I pair herbs and spices to get the flavor outcome I desire?
Students must know:	***Students must be able to:***
• There are a variety of herbs and spices to choose from. • Herbs and spices come in fresh, dry, whole, ground, and crushed, forms. • Herbs and spices vary in strength. • Combinations of specific herbs and spices lend flavor outcomes for country of origin. • Vocabulary: herbs, spices, blends, sachét/bouquet, heat, flavor outcome, flavor combination, sensory evaluation	• Demonstrate understanding for basic seasoning vocabulary and guidelines. • Demonstrate understanding of flavor combinations of basic herbs and spices by creating recipes. • Differentiate between herbs & spices and their uses in dishes. • Recognize commonly used herbs & spices by scent & appearance. • Apply herbs and spices guidelines to flavor different food products.

Art and Science of Foods II
Unit 2: The Good, the Bold, and the Tasty

Missouri Learning Standards

Demonstrate professional food preparation methods and techniques for all menu categories to produce a variety of food products that meet customer needs (8.5)
Supporting Standards:

- Demonstrate professional skills in safe handling of knives, tools, and equipment (8.5.1).
- Demonstrate knowledge of portion control and proper scaling and measurement techniques (8.5.3).

Demonstrate principles of food biology and chemistry (9.7)
Supporting Standards:

- Explain the properties of elements, compounds, and mixtures in foods and food products (9.7.1).
- Analyze the effects of thermodynamics on chemical reactions in foods and food products (9.7.2).

Art and Science of Foods II
Unit 3: Students by Day, Saucier by Night

Stocks & Sauces: Students learn about commercial stocks, five mother sauces, and soups that come from the mother sauces as they taste, produce, and evaluate stocks and sauces to refine their food products.

Unit Essential Learning Targets	
Enduring Understandings	***Essential Questions***
• Mothers sauces lead to sister sauces, all of which can enhance the flavor and appearance of other foods.	• What are the basic principles of preparation for stocks, sauces, soups, meat, poultry, and baked products? • What are the methods used to thicken a liquid?
Students must know:	***Students must be able to:***
• Vocabulary: Stocks, Mother/Sister Sauces, and Soups	• Create and prepare a soup recipe based on the ingredients of a mother sauce (i.e. Clam Chowder based on Béchamel). • Evaluate flavors and qualities of commercial stocks. • Learn about each of the mother sauces and their fundamental ingredients/flavors as they create and evaluate food products. • Create a soup using basic ingredients within a mother sauce.

Art and Science of Foods II
Unit 3: Students by Day, Saucier by Night

Missouri Learning Standards

Demonstrate professional food preparation methods and techniques for all menu categories to produce a variety of food products that meet customer needs (8.5)
Supporting Standards:

- Demonstrate professional skills in safe handling of knives, tools, and equipment (8.5.1).
- Demonstrate knowledge of portion control and proper scaling and measurement techniques (8.5.3).

Demonstrate principles of food biology and chemistry (9.7)
Supporting Standards:

- Explain the properties of elements, compounds, and mixtures in foods and food products (9.7.1).
- Analyze the effects of thermodynamics on chemical reactions in foods and food products (9.7.2).

Art and Science of Foods II
Unit 4: Magnificence of Meat

Students learn how to prepare a variety of meat products based upon the wholesale cut (location on the cattle).

Unit Essential Learning Targets	
Enduring Understandings	***Essential Questions***
• Meat and poultry can be cooked using a variety of methods depending upon meat type.	• How do I determine which cooking method to use for meat?
Students must know:	***Students must be able to:***
• Temperature, cooking technique and time effect the outcome of different wholesale cuts of meat.	• Use taste and texture in order to determine optimal cooking of meats. • Determine appropriate cooking methods based upon where the wholesale cut is located on the cattle.

Art and Science of Foods II
Unit 4: Magnificence of Meat

Missouri Learning Standards

Demonstrate professional food preparation methods and techniques for all menu categories to produce a variety of food products that meet customer needs (8.5)
Supporting Standards:

- Demonstrate professional skills in safe handling of knives, tools, and equipment (8.5.1).
- Demonstrate professional skill for a variety of cooking methods including roasting, broiling, smoking, grilling, sautéing, pan frying, deep frying, braising, stewing, poaching, steaming, and baking using professional equipment and current technologies (8.5.2).
- Demonstrate knowledge of portion control and proper scaling and measurement techniques (8.5.3).
- Prepare various meats, seafood, and poultry using safe handling and professional preparation techniques (8.5.5).

Demonstrate principles of food biology and chemistry (9.7)
Supporting Standards:

- Explain the properties of elements, compounds, and mixtures in foods and food products (9.7.1).
- Analyze the effects of thermodynamics on chemical reactions in foods and food products (9.7.2).
- Relate the composition of lipids and proteins to their functions in foods and their impact on food preparation and nutrition (9.7.5).

Art and Science of Foods II
Unit 5: Basics of Baking: Putting the Fluff in Your Stuff

Students evaluate ingredients in baked goods in order to determine their scientific qualities and influence on product outcome.

Unit Essential Learning Targets	
Enduring Understandings	***Essential Questions***
• Empathy is essential to understanding and being able to add value to our ever-changing world.	• What are the functions of the different items that go into a baked products? • Why is empathy important?
Students must know:	***Students must be able to:***
• Recipe • Formula	• Research, design, and implement a recipe to produce a quality baked product and presentation. • Name the fundamental/common ingredients used in baking as well as the cause and effect relationships the ingredients have with the quality of the baked product. • Demonstrate professional plating, garnishing, and food presentation techniques.

Art and Science of Foods II
Unit 5: Basics of Baking: Putting the Fluff in Your Stuff

Missouri Learning Standards

Demonstrate professional food preparation methods and techniques for all menu categories to produce a variety of food products that meet customer needs (8.5)
Supporting Standards:

- Demonstrate professional skills in safe handling of knives, tools, and equipment (8.5.1).
- Demonstrate knowledge of portion control and proper scaling and measurement techniques (8.5.3).
- Prepare breads, baked goods and desserts using safe handling and professional preparation techniques (8.5.10).
- Demonstrate professional plating, garnishing, and food presentation techniques (8.5.12).

Demonstrate principles of food biology and chemistry (9.7)
Supporting Standards:

- Explain the properties of elements, compounds, and mixtures in foods and food products (9.7.1).
- Analyze the effects of thermodynamics on chemical reactions in foods and food products (9.7.2).
- Explain the impact of molecular structure of simple and complex carbohydrates on digestion, nutrition, and food preparation procedures (9.7.4).