

Title 7: Education K-12

Part 119: Mississippi Secondary Curriculum Frameworks in Career and Technical Education, Agriculture, Food, and Natural Resources, Food Products (Meats)



2021 Food Products (Meats)

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The Research and Curriculum Unit (RCU), located in Starkville, as part of Mississippi State University (MSU), was established to foster educational enhancements and innovations. In keeping with the land-grant mission of MSU, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

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Ms. Rosemary G. Aultman, vice-chair
Dr. Karen J. Elam
Dr. Angela Bass
Mr. Glen East
Dr. Ronnie McGehee
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Standards

Standards and alignment crosswalks are referenced in the appendix. Depending on the curriculum, these crosswalks should identify alignment to the standards mentioned below, as well as possible related academic topics as required in the Subject Area Testing Program in Algebra I, Biology I, English II, and U.S. History from 1877, which could be integrated into the content of the units. Mississippi's CTE food products (meats) curriculum is aligned to the following standards:

National Agriculture, Food, and Natural Resources (AFNR) Career Cluster Content Standards

The National AFNR Career Cluster Content Standards were developed by the National Council on Agricultural Education to serve as a guide for what students should know or be able to do through a study of agriculture in grades 9–12 and two-year postsecondary programs. The standards were extensively researched and reviewed by leaders in the agricultural industry, secondary and postsecondary instructors, and university specialists. The standards consist of a pathway content standard for each of the eight career pathways. For each content standard, performance elements representing major topic areas with accompanying performance indicators were developed. Measurements of assessment of the performance elements and performance indicators were developed at the basic, intermediate, and advanced levels. A complete copy of the standards can be accessed at thecouncil.ffa.org/afnr/ The National AFNR Career Cluster Content Standards are copyrighted to the National Council for Agricultural Education and are used by permission.

International Society for Technology in Education Standards (ISTE)

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iste.org

College- and Career-Ready Standards

College- and career-readiness standards emphasize critical thinking, teamwork, and problem-solving skills. Students will learn the skills and abilities demanded by the workforce of today and the future. Mississippi adopted Mississippi College and Career Ready Standards (MCCRS) to provide a consistent, clear understanding of what students are expected to learn and so teachers and parents know what they need to do to help them.

mdek12.org/oe/college-and-career-readiness-standards

Framework for 21st Century Learning

In defining 21st-century learning, the Partnership for 21st Century Skills has embraced key themes and skill areas that represent the essential knowledge for the 21st century: global awareness; financial, economic, business and entrepreneurial literacy; civic literacy; health literacy; environmental literacy; learning and innovation skills; information, media, and technology skills; and life and career skills. *21 Framework Definitions* (2019).

battelleforkids.org/networks/p21/frameworks-resources

Preface

Secondary CTE programs in Mississippi face many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing applied learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments. This document provides information, tools, and solutions that will aid students, teachers, and schools in creating and implementing applied, interactive, and innovative lessons. Through best practices, alignment with national standards and certifications, community partnerships, and a hands-on, student-centered concept, educators will be able to truly engage students in meaningful and collaborative learning opportunities.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, *Mississippi Code of 1972*, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, Ch. 487, §14; Laws, 1991, Ch. 423, §1; Laws, 1992, Ch. 519, §4 eff. from and after July 1, 1992; Strengthening Career and Technical Education for the 21st Century Act, 2019 [Perkins V]; and Every Student Succeeds Act, 2015).

Mississippi Teacher Professional Resources

The following are resources for Mississippi teachers:

Curriculum, Assessment, Professional Learning

Program resources can be found at the RCU's website, rcu.msstate.edu.

Learning Management System: An Online Resource

Learning management system information can be found at the RCU's website, under Professional Learning.

Should you need additional instructions, call the RCU at 662.325.2510.

Executive Summary

Pathway Description

Food products (meats) is a pathway in the agriculture, food, and natural resources career cluster. This program is designed for students who wish to seek employment or continued education in the meat cutting, packing, and processing professions.

College, Career, and Certifications

After successful completion and mastery of these competencies, students should be equipped with essential knowledge and skills necessary to secure educational and employment opportunities in meat processing, safety, sanitation, inspection, equipment, and facility maintenance. Competencies and suggested performance indicators in the Food Products (Meats) course have been correlated to the National Agriculture, Food, and Natural Resources (AFNR) Career Cluster Content Standards. The AFNR standards have been reviewed and endorsed at the national level by the National Council on Agricultural Education.

Grade Level and Class Size Recommendations

It is recommended that students enter this program as a ninth grader. Exceptions to this are a district-level decision based on class size, enrollment numbers, and student maturity. A maximum of 25 students is recommended for classroom-based courses, while a maximum of 15 students is recommended for lab-based courses.

Student Prerequisites

For students to experience success in the program, the following student prerequisites are suggested:

1. C or higher in English (the previous year)
2. C or higher in high school-level math (last course taken, or the instructor can specify the level of math instruction needed)
3. Instructor approval and TABE reading score (eighth grade or higher)
or
 1. TABE reading and math score (eighth grade or higher)
 2. Instructor approval**or**
 1. Instructor approval

Assessment

The latest assessment blueprint for the curriculum can be found at rcu.msstate.edu/curriculum/curriculumdownload.

Applied Academic Credit

The latest academic credit information can be found at mdek12.org/ese/approved-course-for-the-secondary-schools.

Teacher Licensure

The latest CTE teacher licensure information can be found at mdek12.org/oel/apply-for-an-educator-license.

Professional Learning

If you have specific questions about the content of any of training sessions provided, please contact the RCU at 662.325.2510.

Course Outlines

Option 1—Four 1-Carnegie Unit Courses

This curriculum consists of four 1-credit courses, which should be completed in the following sequence:

1. **Food Products (Meats): Fundamentals—Course Code: 991202**
2. **Food Products (Meats): Custom Operations—Course Code: 991203**
3. **Food Products (Meats): Basic Meats Processing—Course Code: 991204**
4. **Food Products (Meats): Advanced Meats Processing—Course Code: 991205**

Course Description: Food Products (Meats): Fundamentals

This course allows an individual to prepare for employment or continued education in the meat cutting, packing, and processing professions. Topics include orientation to meat processing, safety, sanitation, equipment, and facility maintenance.

Course Description: Food Products (Meats): Custom Operations

This course allows an individual to prepare for employment or continued education in the meat cutting, packing, and processing professions. Topics include custom livestock slaughter, pricing, wrapping, and marketing.

Course Description: Food Products (Meats): Basic Meats Processing

This course allows an individual to prepare for employment or continued education in the meat cutting, packing, and processing professions. Topics include identification and fabrication of carcass beef, box pork, carcass lamb and goat.

Course Description: Food Products (Meats): Advanced Meats Processing

This course allows an individual to prepare for employment or continued education in the meat cutting, packing, and processing professions. Topics include identification and fabrication of poultry and fish wild game, automated processing of meats quality and yield grading, curing, smoking, and sausage making.

Food Products (Meats): Fundamentals—Course Code: 991202

Unit	Unit Name	Hours
1	Careers and Leadership	35
2	Orientation to Meat Processing	15
3	Safety, Sanitation, Equipment, and Facility Maintenance	75
Total		125

Food Products (Meats): Custom Operations—Course Code: 991203

Unit	Unit Name	Hours
4	Custom Livestock Slaughter	40
5	Pricing, Wrapping, and Marketing	23
6	Special Topics in Food Products (Meats) I	32
Total		95

Food Products (Meats): Basic Meats Processing—Course Code: 991204

Unit	Unit Name	Hours
7	Identification and Fabrication of Carcass and Box Beef	60
8	Identification and Fabrication of Carcass and Box Pork	37
9	Identification and Fabrication of Carcass Lamb and Goat	15
Total		112

Food Products (Meats): Advanced Meats Processing—Course Code: 991205

Unit	Unit Name	Hours
10	Identification and Fabrication of Poultry and Fish	10
11	Identification and Fabrication of Wild Game	25
12	Automated Processing of Meats	10
13	Quality and Yield Grading	20
14	Curing, Smoking, and Sausage Making	15
15	Special Topics in Food Products (Meats) II	20
Total		100

Option 2—(Two) 2-Carnegie Unit Courses

This curriculum consists of two 2-credit courses, which should be completed in the following sequence:

1. **Food Products (Meats) I—Course Code: 991200**
2. **Food Products (Meats) II—Course Code: 991201**

Course Description: Food Products (Meats) I

This course is an instructional program that orients an individual to the field of meat processing, marketing, and merchandising. This course allows an individual to prepare for employment or continued education in the meat cutting, packing, and processing professions. Topics include careers, leadership, and orientation, safety, sanitation, equipment, and facility maintenance, livestock slaughter procedures, and pricing, wrapping, and marketing meats.

Course Description: Food Products (Meats) II

This course is a continuation of Food Products (Meats) I. This course allows an individual to prepare for employment or continued education in the meat cutting, packing, and processing professions. Topics include meat cutting, automated processing, quality and yield grading, and curing, smoking, and sausage making.

Food Products (Meats) I—Course Code: 991200

Unit Number	Unit Name	Hours
1	Careers and Leadership	35
2	Orientation to Meat Processing	15
3	Safety, Sanitation, Equipment, and Facility Maintenance	75
4	Custom Livestock Slaughter	40
5	Pricing, Wrapping, and Marketing	23
6	Special Topics in Food Products (Meats) I	32
Total		220

Food Products (Meats) II—Course Code: 991201

Unit	Unit Title	Hours
7	Identification and Fabrication of Carcass and Box Beef	60
8	Identification and Fabrication of Carcass and Box Pork	37
9	Identification and Fabrication of Carcass Lamb and Goat	15
10	Identification and Fabrication of Poultry and Fish	10
11	Identification and Fabrication of Wild Game	25
12	Automated Processing of Meats	10
13	Quality and Yield Grading	20
14	Curing, Smoking, and Sausage Making	15
15	Special Topics in Food Products (Meats) II	20
Total		212

Career Pathway Outlook

Overview

The food products (meats) curriculum prepares students for various occupations involving food science and meat processing. Occupations in this field range from researching ways to improve the efficiency and safety of food production to cutting, trimming, and packaging meat for retail sale. Most butchers and meat cutters work in grocery stores. Training for simple meat cutting may take only a few weeks. However, more complicated cutting tasks generally require training that may last from several months to more than a year. Food scientists and technologists work in laboratories, in offices, and in the field. Food scientists need at least a bachelor's degree from an accredited postsecondary institution, although many get advanced degrees. Food science technicians typically need an associate degree in biology, chemistry, crop or animal science, or a related field.

Needs of the Future Workforce

Employment for food scientists and technologists in Mississippi is expected to grow by 25 percent by 2026. Data for this synopsis were compiled from employment projections prepared by the U.S. Census Bureau, the U.S. Bureau of Labor Statistics (2019), and the Mississippi Department of Employment Security (2019).

Table 1.1: Current and Projected Occupation Report

Description	Jobs, 2016	Projected Jobs, 2026	Change (Number)	Change (Percent)	Average Hourly Earnings, 2019
Butchers and Meat Cutters	230	240	10	4.4	\$13.15
Meat, Poultry, and Fish Cutters and Trimmers	6,340	6,410	70	1.1	\$12.50
Slaughterers and Meat Packers	1,710	1,750	40	2.3	\$12.39
Food Scientists and Technologists	40	50	10	25.0	\$28.05

Source: Mississippi Department of Employment Security; mdes.ms.gov (2019).

Perkins V Requirements and Academic Infusion

The food products (meats) curriculum meets Perkins V requirements of introducing students to and preparing them for high-skill, high-wage occupations. It also offers students a program of study, including secondary, postsecondary, and institutions of higher learning courses, that will further prepare them for careers in the food production industry. Additionally, this curriculum is integrated with academic college- and career-readiness standards. Lastly, the curriculum focuses on ongoing and meaningful professional development for teachers, as well as relationships with industry.

Transition to Postsecondary Education

The latest articulation information for secondary to postsecondary can be found at the Mississippi Community College Board website, mccb.edu.

Best Practices

Innovative Instructional Technologies

Classrooms should be equipped with tools that will teach today's digital learners through applicable and modern practices. The food products (meats) educator's goal should be to include teaching strategies that incorporate current technology. To make use of the latest online communication tools—wikis, blogs, podcasts, and social media platforms, for example—the classroom teacher is encouraged to use a learning management system that introduces students to education in an online environment and places more of the responsibility of learning on the student.

Differentiated Instruction

Students learn in a variety of ways, and numerous factors—students' background, emotional health, and circumstances—create unique learners. By providing various teaching and assessment strategies, students with various learning preferences can have more opportunity to succeed.

CTE Student Organizations

Teachers should investigate opportunities to sponsor a student organization. There are several here in Mississippi that will foster the types of learning expected from the food products (meats) curriculum. FFA is the student organization with many outlets for Agriculture. Student organizations provide participants and members with growth opportunities and competitive events. They also open the doors to the world of agricultural careers and scholarship opportunities.

Cooperative Learning

Cooperative learning can help students understand topics when independent learning cannot. Therefore, you will see several opportunities in the food products (meats) curriculum for group work. To function in today's workforce, students need to be able to work collaboratively with others and solve problems without excessive conflict. The food products (meats) curriculum provides opportunities for students to work together and help each other complete complex tasks. There are many field experiences within the food products (meats) curriculum that will allow and encourage collaboration with professionals currently in the food products (meats) field.

Work-Based Learning

Work-based learning is an extension of understanding competencies taught in the food products (meats) classroom. This curriculum is designed in a way that necessitates active involvement by the students in the community around them and the global environment. These real-world connections and applications link to all types of students to knowledge, skills, and professional dispositions. Work-based learning should encompass ongoing and increasingly more complex involvement with local companies and industry professionals. Thus, supervised collaboration and immersion into the industry around the students are keys to students' success, knowledge, and skills development.

Professional Organizations

American Association for Agricultural Education (AAAE)

aaaeonline.org

Mississippi ACTE

mississippiacte.com

Mississippi FFA/ Mississippi Association of Vocational Agriculture Teachers (MAVAT)

mississippiffa.org

National FFA Organization

ffa.org

National Association of Agricultural Educators (NAAE)

naae.org

Using This Document

Suggested Time on Task

This section indicates an estimated number of clock hours of instruction that should be required to teach the competencies and objectives of the unit. A minimum of 140 hours of instruction is required for each Carnegie unit credit. The curriculum framework should account for approximately 75-80% of the time in the course. The remaining percentage of class time will include instruction in non-tested material, review for end-of-course testing, and special projects.

Competencies and Suggested Objectives

A competency represents a general concept or performance that students are expected to master as a requirement for satisfactorily completing a unit. Students will be expected to receive instruction on all competencies. The suggested objectives represent the enabling and supporting knowledge and performances that will indicate mastery of the competency at the course level.

Teacher Resources

Teacher resources for this curriculum may be found in multiple places. Many program areas have teacher resource documents that accompany the curriculum and can be downloaded from the same site as the curriculum. The teacher resource document contains references, lesson ideas, websites, teaching and assessment strategies, scenarios, skills to master, and other resources divided by unit. This document could be updated periodically by RCU staff. Please check the entire document, including the entries for each unit, regularly for new information. If you have something you would like to add or have a question about the document, call or email the RCU's instructional design specialist for your program. The teacher resource document can be downloaded at rcu.msstate.edu/curriculum/curriculumdownload.aspx. All teachers should request to be added to the Canvas Resource Guide for their course. This is where all resources will be housed in the future, if they are not already. To be added to the guide, [send a Help Desk ticket to the RCU](#) by emailing helpdesk@rcu.msstate.edu.

Perkins V Quality Indicators and Enrichment Material

Many of the units include an enrichment section at the end. If the food products (meats) program is currently using the Mississippi Career Planning and Assessment System (MS-CPAS) as a measure of accountability, the enrichment section of material will not be tested. If this is the case, it is suggested to use the enrichment material when needed or desired by the teacher and if time allows in the class. This material will greatly enhance the learning experiences for students. If, however, the food products (meats) program is using a national certification or other measure of accountability that aligns with Perkins V as a quality indicator, this material could very well be tested. It is the responsibility of the teacher to ensure all competencies for the selected assessment are covered throughout the year.

Unit 1: Careers and Leadership

Competencies and Suggested Objectives

1. Identify career opportunities in meat cutting, packing, and processing professions. ^{DOK1}
 - a. Define *meat cutter*.
 - b. Research the major categories of job classifications in the meat cutting, packing, and processing profession.
2. Explain the benefits of FFA participation. ^{DOK1}
 - a. Identify FFA organizational activities that promote and recognize achievements in meat cutting, packing, and processing. ^{DOK1}
 - b. Identify FFA organizational activities that promote leadership development including career development events, leadership conferences, national and international exchange programs, education experience with industry, and personal and community development programs.
 - c. Identify opportunities for members in FFA, including personal development, personal recognition, career exploration, and self-expression.
 - d. Identify the benefits of FFA participation to an individual and to the meat cutting, packing, and processing industry, including personal growth and development, exposure to the meat industry environment, and multicultural experiences.
3. Demonstrate group leadership skills and personal traits. ^{DOK2}

• Communication	• Positive self-concept
• Considerate	• Problem-solving
• Cooperation	• Punctuality
• Dependability	• Rational thinking
• Effective listening	• Resilience
• Empathy	• Respect for others
• Enthusiasm	• Responsibility
• Getting along with others	• Responsible use of social media
• Good manners	• Safety conscious
• Honesty	• Self-motivated/determined
• Humility	• Setting priorities
• Interpersonal skills	• Teamwork
• Loyalty	• Trustworthy
• Open-minded	• Work ethic

Enrichment

Future President Scenario

You are the FFA president and need to present to a group of middle school students on the FFA. Prepare a 2-3-minute speech on the benefits of FFA. Prepare the speech according to the FFA guidelines for speeches (impromptu, extemporaneous, etc.) The class will peer review the speech and discuss clarity and content. Use the oral report rubric in the teacher resource document.

Unit 2: Orientation to Meat Processing

Competencies and Suggested Objectives
1. Explain trends in slaughtering and processing in the past and in the future. ^{DOK 1} a. Compare trends in slaughtering and processing 20 years in the past and in the future. b. Discuss emerging technologies related to slaughtering and meat processing.
2. Describe factors affecting consumer food spending. ^{DOK 2} a. Describe factors affecting consumer food spending to include income, geographic area, ethnic groups, and religious groups. b. Discuss biological health hazards, such as chronic wasting disease (CWD), and their effects on consumer spending.
Enrichment
<u>Market Scenario</u> You just bought a retail meat market that is outdated. You need to research current trends and technologies to meet consumer demands and make your shop successful.

Unit 3: Safety, Sanitation, Equipment, and Facility Maintenance

Competencies and Suggested Objectives	
1.	Explain general meat laboratory safety requirements. ^{DOK 2} a. List and practice safety rules and procedures.
2.	Discuss sanitation as it applies to a meat cutting facility. ^{DOK 3} a. Describe sanitary operation of a meat cutting facility. b. Describe proper donning and doffing of personal protective equipment while in the laboratory setting. c. Describe state and federal inspection guidelines as they apply to meat processing facilities, including ways to avoid fecal contamination. d. Identify correct temperatures for meat processing and storage and explain the importance of each. e. Describe the benefits of a rail system. f. Select and use proper aprons, disposable gloves, hard hats, eye protection, hair nets, rubber boots, etc. g. Disinfect aprons and rubber boots after each use.
3.	Discuss federal regulations related to meat processing. ^{DOK 2} a. Discuss HACCP (Hazards Analysis Critical Control Point) as a method to prevent foodborne illness. b. Discuss the role of the USDA Food Safety and Inspection Service related to quality assurance.
4.	Identify and safely use equipment for meat cutting, packing, and processing. ^{DOK 2} a. Identify equipment used in a meat laboratory, including a band saw, grinder, mixer, tenderizer, slicing machine, and stuffer. b. Safely assemble and disassemble equipment, including band saw, grinder, mixer, tenderizer, slicing machine, and stuffer. c. Identify, safely use, and sanitize other meat cutting equipment including knives, knife sharpener, steel and hone, stockinette, dead lock and tag, scales and weighing items, vacuum packer, salinometer, squeegee equipment, patty machine, heat seal, cooler, freezer, rail system, tables, hoist, skinning knife, and carcass split saw. d. Use sterilizer for knives and steel.
5.	Demonstrate equipment maintenance used in a meat cutting facility. ^{DOK 2} a. Maintain a sharp knife including boning and butcher knives. b. Perform equipment and maintenance procedures for grinder, slicer, and band saw. c. Use proper disinfection procedures for cleaning tables after use. d. Demonstrate proper hand washing procedure before and after working in the meat cutting laboratory.

6. Maintain a safe and sanitary facility. ^{DOK 2}
 - a. Wash and disinfect walls and floors.
 - b. Maintain a safe environment by wiping up spills, keeping aisles clear, and performing other tasks.

Enrichment

Safety and Sanitation

As the owner of a new meat market, the meat inspectors are disapproving because you do not have any safety or sanitation plans in place. You need to develop a HACCP plan to ensure your shop is safe and clean in order to open your business. Use the written report rubric from the teacher resource document for guidance.

Note: Safety is to be taught as an ongoing part of the program. Students are required to complete a written safety test with 100% accuracy before entering the shop for lab simulations and projects. This test should be documented in each student's file.

Note: This unit will be ongoing throughout the year. Time allotted for this unit will be distributed over the entire year.

Unit 4: Custom Livestock Slaughter

Competencies and Suggested Objectives
<ol style="list-style-type: none">1. Explain terms and procedures associated with livestock slaughter. ^{DOK1}<ol style="list-style-type: none">a. Define terms and procedures associated with the slaughter of beef.b. Define terms and procedures associated with the slaughter of swine.c. Define terms and procedures associated with the slaughter of lamb and goat.d. Define terms and procedures associated with the slaughter of poultry.e. Define terms and procedures associated with the slaughter of fish.f. Define terms and procedures associated with dressing of wild game.g. Discuss the difference between antemortem and postmortem inspection.
<ol style="list-style-type: none">2. Discuss types, cleaning, use, and maintenance of slaughter facility and equipment. ^{DOK1}<ol style="list-style-type: none">a. Identify equipment, including immobilizer, skinning knives, rails and rail hooks, scales, dehairing machine, hoist, and carcass split saw.b. Discuss maintenance of a safe and sanitary facility.c. Identify what constitutes contamination from biologic and toxic sources.
<ol style="list-style-type: none">3. Discuss procedures for slaughtering livestock and dressing wild game. ^{DOK2}<ol style="list-style-type: none">a. Discuss procedures for slaughtering beef.b. Discuss procedures for slaughtering swine.c. Discuss procedures for slaughtering lamb and goat.d. Discuss procedures for dressing wild game.e. Discuss procedures for slaughtering livestock and recognize when to condemn part of a carcass.f. Describe methods of disposing of offal.
Enrichment
<p><u>Byproducts Scenario</u> As a new owner of a beef slaughterhouse, you need to find out what you can sell of animal byproducts. You need to research what byproducts you can sell and the price of those byproducts. Use the presentation rubric from the teacher resource document for guidance.</p>

Unit 5: Pricing, Wrapping, and Marketing

Competencies and Suggested Objectives	
1.	Compare and contrast consumer trends, supply and demand, and the effects on meat prices. DOK1 a. Discuss supply and demand and its effects on meat prices. b. Identify current consumer trends.
2.	List the steps and perform a cutting test. DOK2 a. List the steps in a cutting test. b. Perform a cutting test.
3.	Discuss techniques and wrap retail meat. DOK2 a. Discuss techniques of wrapping retail meats. b. Wrap and label meat for home freezing. c. Wrap, weigh, label, and price meat for retail sale. d. Describe the proper temperatures for maximum storage life of retail meats using a cooler, display case, or freezer. e. Vacuum seal various cuts of meat.
4.	Describe marketing principles related to the display of meat. DOK2 a. Describe marketing principles related to the display of meat. b. Describe the effects vacuum sealing has on the shelf life of meat.
Enrichment	
<u>Meat Marketing Scenario</u> You are working for a large grocery chain in the advertising department. The chain is planning a big sales event next month and they expect you to develop the marketing plan for the meat departments. Use the presentation or poster rubric from the teach resource document for guidance.	

Unit 6: Special Topics in Food Products (Meats) I

Competencies and Suggested Objectives
<ol style="list-style-type: none">1. Investigate new and emerging technologies, practices, trends, and issues associated with food products (meats). ^{DOK3}<ol style="list-style-type: none">a. Prepare and present a report on a new and emerging technology associated with food products (meats).b. Prepare and present a report on a current trend or issue associated with food products (meats).
<ol style="list-style-type: none">2. Complete school-to-careers activities related to food products (meats). ^{DOK2}<ol style="list-style-type: none">a. Participate in a school-to-careers activity (shadowing, mentoring, career fair, etc.) related to food products (meats).b. Investigate educational opportunities related to food products (meats) at the postsecondary level.c. Describe national standards and certification/licensing procedures related to food products (meats).d. Describe the role of trade organizations, associations, and unions as related to food products (meats).
<ol style="list-style-type: none">3. Demonstrate related academic skills and workplace skills associated with food products (meats). ^{DOK2}<ol style="list-style-type: none">a. Complete a cooperative project (paper, presentation, or demonstration) associated with an academic subject and food products (meats).b. Practice human relations skills (team participation, client/customer service, leadership, negotiation, working with culturally diverse groups, etc.) related to food products (meats).c. Research work ethics and employer expectations of employees in food products (meats).
<ol style="list-style-type: none">4. Investigate the concepts of quality assurance as related to food products (meats). ^{DOK3}<ol style="list-style-type: none">a. Describe quality concepts and methods for measuring quality related to food products (meats).b. Apply quality concepts in the food products (meats) laboratory.
<ol style="list-style-type: none">5. Examine trends and changes related to food products (meats) and global economic factors. ^{DOK1}<ol style="list-style-type: none">a. Define and discuss the concept of global economics and competition.b. Describe global economic factors and competition as related to food products (meats).c. Identify regions and other countries which compete in food products (meats).
Enrichment
<p>Beef Trends Scenario: As a food science worker with a major livestock board, your job is to keep up with current trends affecting the beef industry. You will give a presentation to the group on current trends, technologies, and jobs available in today's market. Use the presentation rubric from the teacher resource document for guidance.</p>

Unit 7: Identification and Fabrication of Carcass and Box Beef

Competencies and Suggested Objectives

1. Identify and safely fabricate cuts of beef. ^{DOK2}
 - a. Identify carcass break cuts of beef.
 - b. Make retail cuts of round.
 - c. Make retail cuts of loin.
 - d. Make retail cuts of rib.
 - e. Make retail cuts of chuck.
 - f. Make retail cuts of foreshank.
 - g. Make retail cuts of brisket.
 - h. Make retail cuts of plate.
 - i. Make retail cuts of flank.
2. Identify and safely fabricate variety cuts of beef. ^{DOK2}
 - a. Make retail cuts of tongue.
 - b. Make retail cuts of heart.
 - c. Make retail cuts of liver.
 - d. Make retail cuts of kidney.
 - e. Make retail cuts of brain.

Enrichment

Retail Cuts Poster (could be used with other units as well)

You are the market manager at the local grocery store. You have just hired a new meat cutter, but you need to know how much she knows about cutting meat. You will need to develop a poster of retail cuts of beef to ensure your new butcher knows these cuts. Use poster rubric in teacher resource guide document for guidance.

Unit 8: Identification and Fabrication of Carcass and Box Pork

Competencies and Suggested Objectives
1. Identify and safely fabricate cuts of pork. ^{DOK2} <ol style="list-style-type: none">Identify carcass break cuts of pork.Make retail cuts of ham.Make retail cuts of loin.Make retail cuts of shoulder (Boston butt and picnic).Make retail cuts of side.
2. Identify and safely fabricate retail variety cuts of pork. ^{DOK2} <ol style="list-style-type: none">Make retail cuts of tongue.Make retail cuts of liver.Make retail cuts of chitterlings.Make retail cuts of stomach.Make retail cuts of kidneys.Make retail cuts of snouts.

Unit 9: Identification and Fabrication of Carcass Lamb and Goat

Competencies and Suggested Objectives
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| <ol style="list-style-type: none">1. Identify and safely fabricate cuts of lamb and goat. ^{DOK2}<ol style="list-style-type: none">a. Identify carcass break cuts of lamb and goat.b. Identify retail cuts of leg.c. Identify retail cuts of loin.d. Identify retail cuts of rib.e. Identify retail cuts of shoulder.f. Identify retail cuts of foreshank and breast. |
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Unit 10: Identification and Fabrication of Poultry and Fish

Competencies and Suggested Objectives
1. Identify and safely fabricate cuts of poultry. ^{DOK2} <ol style="list-style-type: none">Identify carcass break cuts of poultry.Make retail cuts of breast quarter.Make retail cuts of leg quarter.Make retail cuts of back quarter.
2. Identify variety cuts of poultry. ^{DOK2} <ol style="list-style-type: none">Identify retail cuts of heart.Identify retail cuts of liver.Identify retail cuts of gizzard.Identify retail cuts of neck.
3. Identify retail cuts of fish. ^{DOK2}
Enrichment
<u>Fry Cook</u> You have been asked to demonstrate the correct way of cutting up a chicken for frying. Develop a presentation using visuals.

Unit 11: Identification and Fabrication of Wild Game

Competencies and Suggested Objectives

1. Identify and safely fabricate cuts of wild game. ^{DOK2}
 - a. Make cuts of top round.
 - b. Make cuts of bottom round.
 - c. Make cuts of tip roast.
 - d. Make cuts of eye round.
 - e. Make cuts of loin eye.
 - f. Make cuts of ribs.
 - g. Debone front shoulders.
2. Prepare wild game specialty products. ^{DOK2}
 - a. Prepare various sausage products.
 - b. Prepare ground products.
 - c. Discuss preparation of jerky products.

Enrichment

Deer Processing

The local wildlife department is making health checks on the local deer herd. They want to take twenty deer out of the population and donate these deer to a local charity. They have asked your meats class to help process these deer. They want you to process as many different products as possible, for example: steaks, roast, and ground products. Please demonstrate how to prepare their deer for this project.

Unit 12: Automated Processing of Meats

Competencies and Suggested Objectives
1. Observe and discuss the automated processing of various types of meat. ^{DOK2} <ol style="list-style-type: none">Observe and discuss step-by-step procedures for the automated slaughtering and fabrication processing of beef, pork, lamb, poultry, and fish.Observe and discuss step-by-step procedures for the automated canning process of beef, pork, lamb, poultry, and fish.
Enrichment
<u>Proper Processing Plan</u> <p>You are searching for ways to automate your custom processing plant. As you watch the presentation, keep a journal of how you could incorporate the various systems in your plant. To help, draw diagrams along with your writings. Use the journal rubric in the teacher resource document for guidance.</p>

Unit 13: Quality and Yield Grading

Competencies and Suggested Objectives
1. Explain quality and yield grades for beef and determine classifications of beef. ^{DOK2} a. Explain quality grades for beef. b. Explain yield grades of beef. c. Determine classification of beef. d. Estimate amount of kidney fat, pelvic fat, and age. e. Estimate amount of marbling in a ribeye.
2. Explain quality grades and determine classification of pork. ^{DOK2} a. Explain quality grades for pork. b. Determine classification of pork.
3. Explain quality and yield grades for lamb and determine classifications of sheep. ^{DOK2} a. Explain quality grades of lamb. b. Explain yield grades of lamb. c. Determine classification of sheep.
4. Explain grades in poultry. ^{DOK2} a. Explain grades of poultry. b. Discuss poultry classifications.
Enrichment
<u>Grade My Ribeye Please</u> You are the food buyer for a major restaurant chain. You are presented four different high-end ribeye steaks to select from for the business. You will evaluate each ribeye, determine the quality grade, and select the best ribeye for your order. Use the job sheet/performance rubric in the teacher resource document for guidance.

Unit 14: Curing, Smoking, and Sausage Making

Competencies and Suggested Objectives

1. Explain and demonstrate meat curing and smoking processes. ^{DOK2}
 - a. Define curing, smoking, and sausage making terms.
 - b. Describe the functions of curing and smoking.
 - c. Describe meat curing ingredients and calculate correct amount of each.
 - d. Explain methods of meat curing.
 - e. Identify and use equipment for the smoking and curing process.
 - f. Describe the process of curing bacon in brine solution.
 - g. Describe the process of curing jowl in brine solution.
 - h. Pump shoulders.
 - i. Pump hams.
 - j. Pump loin.
 - k. Discuss the process of smoking a shoulder, ham, loins, bacon, and jowls.
2. Explain and demonstrate the process of sausage making. ^{DOK2}
 - a. Mix and grind sausage with cure and seasoning.
 - b. Read a salinometer.
 - c. Prepare a brine solution.
 - d. Stuff sausage in casing.
 - e. Smoke sausage in smoker.

Enrichment

Simply Sausage

You are a well-known sausage maker. Your company is very profitable because of your knowledge and skills. You have decided to take your claim to fame a step farther by creating a “how-to” sausage recipe book. You will need to include safety, sanitation, curing, stuffing, and smoking procedures.

Unit 15: Special Topics in Food Products (Meats) II

Competencies and Suggested Objectives
<ol style="list-style-type: none">1. Investigate new and emerging technologies, practices, trends, and issues associated with food products (meats). ^{DOK3}<ol style="list-style-type: none">a. Prepare a report on a new and emerging technology associated with food products (meats).b. Prepare a report on a current trend or issue associated with food products (meats).
<ol style="list-style-type: none">2. Complete school-to-careers activities related to food products (meats). ^{DOK2}<ol style="list-style-type: none">a. Participate in a school-to-careers activity (shadowing, mentoring, career fair, etc.) related to food products (meats).b. Investigate educational opportunities related to food products (meats) at the postsecondary level.c. Describe national standards and certification/licensing procedures related to food products (meats).d. Describe the role of trade organizations, associations, and unions as related to food products (meats).
<ol style="list-style-type: none">3. Demonstrate related academic skills and workplace skills associated with food products (meats). ^{DOK2}<ol style="list-style-type: none">a. Complete a cooperative project (paper, presentation, or demonstration) associated with an academic subject and food products (meats).b. Practice human relations skills (team participation, client/customer service, leadership, negotiation, working with culturally diverse groups, etc.) related to food products (meats).c. Research work ethics and employer expectations of employees in food products (meats).
<ol style="list-style-type: none">4. Investigate the concepts of quality assurance as related to food products (meats). ^{DOK3}<ol style="list-style-type: none">a. Describe concepts and methods for measuring quality related to food products (meats).b. Apply quality concepts in the food products (meats) laboratory.
<ol style="list-style-type: none">5. Examine trends and changes related to food products (meats) and global economic factors. ^{DOK2}<ol style="list-style-type: none">a. Define and discuss the concept of global economics and competition.b. Describe global economic factors and competition as related to food products (meats).c. Identify regions and other countries which compete in food products (meats).
Enrichment
<p><u>Trending Now</u> As a food science worker with a major livestock board, your job is to keep up with current trends affecting the meat industry. You will give a presentation to this board (your peers) on current trends, technologies, and jobs available in today's market. Use the presentation rubric from the teacher resource document for guidance.</p>

Student Competency Profile

Student's Name: _____

This record is intended to serve as a method of noting student achievement of the competencies in each unit. It can be duplicated for each student, and it can serve as a cumulative record of competencies achieved in the course.

In the blank before each competency, place the date on which the student mastered the competency.

Unit 1: Careers and Leadership		
	1.	Identify career opportunities in meat cutting, packing, and processing professions.
	2.	Identify the leadership opportunities and activities which are beneficial to students in meat cutting, packing, and processing.
Unit 2: Orientation to Meat Processing		
	1.	Explain trends in slaughtering and processing in the past and in the future.
	2.	Describe factors affecting consumer food spending.
Unit 3: Safety, Sanitation, Equipment, and Facility Maintenance		
	1.	Explain general meat laboratory safety requirements.
	2.	Discuss sanitation as it applies to a meat cutting facility.
	3.	Discuss federal regulations related to meat processing.
	4.	Identify and safely use equipment for meat cutting, packing, and processing.
	5.	Demonstrate equipment maintenance used in a meat cutting facility.
	6.	Maintain a safe and sanitary facility.
Unit 4: Custom Livestock Slaughter		
	1.	Explain terms and procedures associated with livestock slaughter.
	2.	Discuss types, cleaning, use, and maintenance of slaughter facility and equipment.
	3.	Discuss procedures for slaughtering livestock and dressing wild game.

Unit 5: Pricing, Wrapping, and Marketing		
	1.	Compare and contrast consumer trends, supply and demand, and the effects on meat prices
	2.	List the steps and perform a cutting test.
	3.	Discuss techniques and wrap retail meat.
	4.	Describe marketing principles related to the display of meat.
Unit 6: Special Topics in Food Products (Meats) I		
	1.	Investigate new and emerging technologies, practices, trends, and issues associated with food products (meats).
	2.	Complete school-to-careers activities related to food products (meats).
	3.	Demonstrate related academic skills and workplace skills associated with food products (meats).
	4.	Investigate the concepts of quality assurance as related to food products (meats).
	5.	Examine trends and changes related to food products (meats) and global economic factors.
Unit 7: Identification and Fabrication of Carcass and Box Beef		
	1.	Identify and safely fabricate cuts of beef.
	2.	Identify and safely fabricate variety cuts of beef.
Unit 8: Identification and Fabrication of Carcass and Box Pork		
	1.	Identify and safely fabricate cuts of pork.
	2.	Identify and safely fabricate retail variety cuts of pork.
Unit 9: Identification and Fabrication of Carcass Lamb and Goat		
	1.	Identify and safely fabricate cuts of lamb and goat.
Unit 10: Identification and Fabrication of Poultry and Fish		
	1.	Identify and safely fabricate cuts of poultry.
	2.	Identify variety cuts of poultry.
	3.	Identify retail cuts of fish.
Unit 11: Identification and Fabrication of Wild Game		
	1.	Identify and safely fabricate cuts of wild game.
	2.	Prepare wild game specialty products.

Unit 12: Automated Processing of Meats		
	1.	Observe and discuss the automated processing of various types of meat.
Unit 13: Quality and Yield Grading		
	1.	Explain quality and yield grades for beef and determine classifications of beef.
	2.	Explain quality grades and determine classification of pork.
	3.	Explain quality and yield grades for lamb and determine classifications of sheep.
	4.	Explain grades in poultry.
Unit 14: Curing, Smoking, and Sausage Making		
	1.	Explain and demonstrate meat curing and smoking processes.
	2.	Explain and demonstrate the process of sausage making.
Unit 15: Special Topics in Food Products (Meats) II		
	1.	Investigate new and emerging technologies, practices, trends, and issues associated with food products (meats).
	2.	Complete school-to-careers activities related to food products (meats).
	3.	Demonstrate related academic skills and workplace skills associated with food products (meats).
	4.	Investigate the concepts of quality assurance as related to food products (meats).
	5.	Examine trends and changes related to food products (meats) and global economic factors.

Source: Miss. Code Ann. §§ 37-1-3 and 37-31-103

Appendix A: Industry Standards

AGRICULTURE, FOOD, AND NATURAL RESOURCES (AFNR) PATHWAY CONTENT STANDARDS AND PERFORMANCE ELEMENTS

Crosswalk for Food Products (Meats)											
	Units	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10
AFNR											
AF -FOOD PRODUCTS AND PROCESSING SYSTEMS		X	X	X	X	X	X	X	X	X	X
AFNR											
		Unit 11	Unit 12	Unit 13	Unit 14	Unit 15					
		X	X	X	X	X					

AF - FOOD PRODUCTS AND PROCESSING SYSTEMS

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Pathway Content Standard: The student will demonstrate competence in the application of scientific principles, practices, and techniques in the processing, storage, and development of food products.

FPP.01. Develop and implement procedures to ensure safety, sanitation, and quality in food product and processing facilities.

FPP.01.01 Analyze and manage operational and safety procedures in food products and processing facilities.

FPP.01.02 Apply food safety and sanitation procedures in the handling and processing of food products to ensure food quality.

FPP.01.03 Apply food safety procedures when storing food products to ensure food quality.

FPP.02. Apply principles of nutrition, biology, microbiology, chemistry, and human behavior to the development of food products.

FPP.02.01 Apply principles of nutrition and biology to develop food products that provide a safe, wholesome, and nutritious food supply for local and global food systems.

FPP.02.02 Apply principles of microbiology and chemistry to develop food products to provide a safe, wholesome, and nutritious food supply for local and global food systems.

FPP.02.03 Apply principles of human behavior to develop food products to provide a safe, wholesome, and nutritious food supply for local and global food systems.

FPP.03 Select and process food products for storage, distribution, and consumption.

FPP.03.01 Implement selection, evaluation, and inspection techniques to ensure safe and quality food products.

FPP.03.02 Design and apply techniques of food processing, preservation, packaging and presentation for distribution and consumption of food products.

FPP.03.03 Create food distribution plans and procedures to ensure safe delivery of food products.

FPP.04. Explain the scope of the food industry and the historical and current developments of food product and processing.

FPP.04.01 Examine the scope of the food industry by evaluating local and global policies, trends, and customs for food production.

FPP.04.02 Evaluate the significance and implications of changes and trends in the food products and processing industry in the local and global food systems.

FPP.04.03 Identify and explain the purpose of industry organizations, groups and regulatory agencies that influence the local and global food systems.