



Culinary Techniques

FOR HEALTHY SCHOOL MEALS

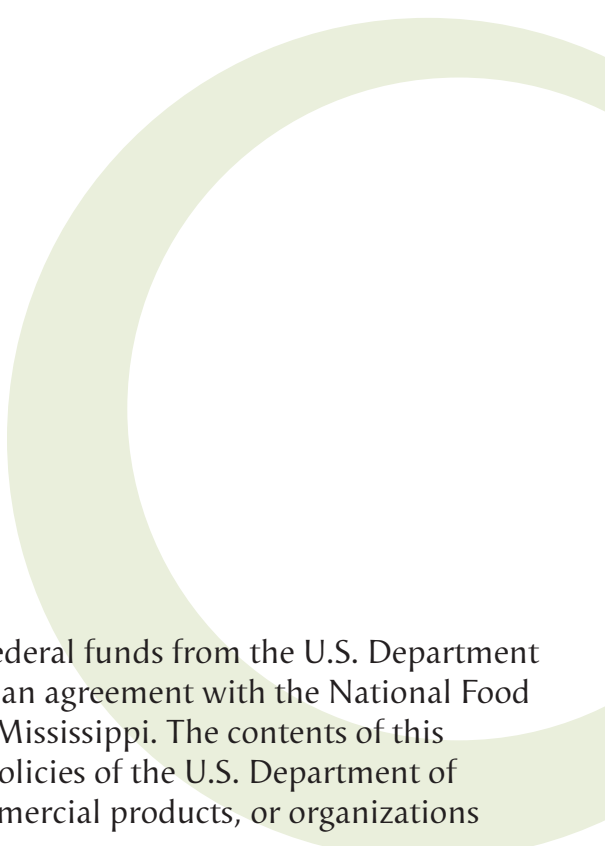
Preparing Meats, Poultry, and Fish

National Food Service Management Institute
The University of Mississippi
Culinary Techniques for Healthy School Meals

2nd Edition • ET80-09

2009





This project has been funded at least in part with Federal funds from the U.S. Department of Agriculture, Food and Nutrition Service through an agreement with the National Food Service Management Institute at The University of Mississippi. The contents of this publication do not necessarily reflect the views or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

The University of Mississippi is an EEO/Title VI/Title IX/Section 504/ADA/ADEA Employer.

© 2009, National Food Service Management Institute, The University of Mississippi

Except as provided below, you may freely use the text and information contained in this document for non-profit, educational use providing the following credit is included.

Suggested Reference Citation:

National Food Service Management Institute. (2009). *Culinary techniques for healthy school meals* (2nd ed.). University, MS: Author.

The photographs and images in this document may be owned by third parties and used by the University of Mississippi under a licensing agreement. The University cannot, therefore, grant permission to use these images. For more information, please contact nfsmi@olemiss.edu.

National Food Service Management Institute The University of Mississippi

Building the Future Through Child Nutrition

The National Food Service Management Institute was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford. The Institute operates under a grant agreement with the U.S. Department of Agriculture, Food and Nutrition Service.

PURPOSE

The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination. The Administrative Offices and Divisions of Information Services and Education and Training are located in Oxford. The Division of Applied Research is located at The University of Southern Mississippi in Hattiesburg.

MISSION

The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

VISION

The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

CONTACT INFORMATION

Headquarters

The University of Mississippi

Phone: 800-321-3054

Fax: 800-321-3061

www.nfsmi.org

Education and Training Division

Information Services Division

The University of Mississippi

6 Jeanette Phillips Drive

P.O. Drawer 188

University, MS 38677-0188

Applied Research Division

The University of Southern Mississippi

118 College Drive #10077

Hattiesburg, MS 39406-0001

Phone: 601-266-5773

Fax: 888-262-9631

Acknowledgments

SECOND EDITION WRITTEN BY

Catharine Powers, MS, RD, LD
Culinary Nutrition Associates, LLC

VIDEO PRODUCTION BY

The Culinary Institute of America
Hyde Park, NY 12538

GRAPHIC DESIGN BY

Tami Petitto
Medina, OH

ACKNOWLEDGEMENTS

Sincere appreciation is expressed to all individuals who contributed their time and expertise to the development of the first edition of *Culinary Techniques for Healthy School Meals*. The first edition was developed and funded by a USDA Team Nutrition Grant awarded to the states of Mississippi, Florida, and Kentucky. Additional funding and expertise was provided by the states of Alabama, Georgia, Louisiana, North Carolina, South Carolina, and Tennessee. A special thanks to Doris Schneider of Mississippi, Patricia Craig Jenkins, and Dr. Josephine Martin of the National Food Service Management Institute, and Lumina Training Associates for their original work.

PROJECT COORDINATOR

Catharine Powers, MS, RD, LD
Culinary Nutrition Associates, LLC

EXECUTIVE DIRECTOR

Charlotte B. Oakley, PhD, RD, FADA





Table of Contents

| | <u>Page</u> |
|---|-------------|
| Preparing Meats, Poultry, and Fish | 2 |
| Important Terms | 3 |
| Mise en Place | 4 |
| Meat, Poultry, Fish and Healthy School Meals | 5 |
| Culinary Principles | 6 - 7 |
| Flavor Enhancement | 8 |
| Culinary Technique: Dry Heat - Roasting or Baking | 9 |
| Culinary Technique: Dry Heat - Sautéing. | 10 |
| Culinary Technique: Moist Heat - Braising and Stewing | 11 |
| Quality Standards | 12 |
| Quality Score Card for Meats, Poultry, and Fish | 13 |
| Culinary Application and Practice Activity. | 14 |
| Culinary Practice Score Card for Meats, Poultry, and Fish | 15 |
| References | 16 |





Preparing Meats, Poultry, and Fish

Objectives

- Improve the quality of meats, poultry, and fish served to students.
- Improve the variety of meats, poultry, and fish served to students.
- Improve the appeal of meats, poultry, and fish served to students.

Main Ideas in This Lesson

- There is some fat in all meat, poultry, and fish. Some products have more fat than others.
- All meat, poultry, and fish should be cooked until the internal temperature in the thickest part reaches 165 °F.
- Culinary techniques for cooking meat, poultry, and fish can be divided into those that use dry heat or moist heat.
- Whenever meat, poultry, or fish products are cooked, use ways to reduce the fat.

Preparation for Learning

Review the list of recipes with each Culinary Technique. The recipes are available at:

U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2005). *USDA recipes for child care*. University, MS: Author.

Available online at <http://www.nfsmi.org>

U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2006). *USDA recipes for schools*. University, MS: Author.

Available online at <http://www.nfsmi.org>

Practice or Application

Prepare one or more of the recipes listed with one of the Culinary Techniques.

Additional Suggestions

- Practice the correct way to place a meat thermometer in the thickest part of a large piece of meat.
- Practice the correct way to test the temperature of individual portions of meat. Stack portions until several inches thick. Then insert a stem-type thermometer into the stacked portions. Determine the internal temperature.
- Practice the correct way to clean and sanitize a stem-type thermometer after use.
- Locate a recipe for a dry marinade or rub and discuss ways the recipe could be used to enhance the flavor of meat, poultry, or fish products.



Important Terms

Braise

A moist-heat cooking method used for less tender, large cuts of meat.

Culinary

Relating to the kitchen or cooking. An example of use is to describe food preparation skills as culinary skills.

Culinary Technique

A step-by-step food preparation method. The culinary techniques discussed in this lesson include roasting/baking, sautéing, braising, and stewing meat, poultry, and fish.

Dry Heat

Cooking without adding any liquid. Examples are roasting, broiling, pan-broiling, griddle broiling, and sautéing.

Just-In-Time Preparation

This term is used throughout the lessons to mean preparing a menu item in small enough quantities so that it will be at its peak of quality when placed on the serving line. This preparation schedule avoids holding any food for a long time. Other terms that mean the same thing are *batch cooking* and *cooking to the line*.

Marinate

To soak a food in a seasoned liquid to flavor and tenderize the food. The liquid is called a marinade.

Meat

The edible portion of mammals, the main ones in the United States being cattle (beef), swine (pork), and sheep (mutton and lamb).

Moist Heat

Cooking with added moisture. Examples are braising, stewing, and poaching.

Mirepoix (miro-poy)

A seasoning mixture of two parts onion, one part celery, and one part carrots. Herbs and spices may be added. This coarse chopped vegetable mixture is added to meats that are roasted or braised for flavor. The juices are drained off when the meat is done and can then be served with the meat or used to make sauces and gravy. The juices should be chilled so that the fat can be removed.

Mise en Place (meez-un-plahss)

A French term used by chefs and other food professionals to describe all the different things that have to be done to get ready up to the point of cooking. Translated, it means *put in place*. It includes all the *get ready steps* in food preparation such as using the recipe to assemble the equipment needed and getting ingredients ready to combine.

Potentially Hazardous Food

Food that can support the growth of certain toxic microorganisms. This group includes meats, poultry, eggs, fish, and some plant foods. These foods should be kept cold (below 41 °F) or hot (above 135 °F). Between 41 °F–135 °F is the Danger Zone where microorganisms can grow quickly.

Poultry

Domestic birds kept for eggs and meat. The poultry products used most often in school meals are chicken and turkey.

Roast

A dry-heat technique of cooking meat in an oven with no added moisture. Baking is the same technique when applied to meat and poultry.

Sauté

To cook food quickly using small amount of fat, stirring to brown it evenly.

Sear

To brown meat on all sides before braising or stewing.

Simmer

To cook on low heat with added moisture such as stock or water (braising or stewing).





Mise en Place

Getting Ready

Wash, rinse, sanitize, and air-dry all food-contact surfaces, equipment, and utensils that will be in contact with meat, poultry, fish, and other recipe ingredients.

Equipment Needed

- Cutting boards designated for meat, poultry, and fish
- Appropriate cooking equipment and pans
- Meat thermometers
- Ingredients pre-prepped (thawed, chopped, diced)
- Measuring utensils

Keeping It Safe

Taking the Temperature

It is important to use a thermometer when cooking meat, poultry, and fish because food safety is one of the highest priorities in a school nutrition program. To be safe to eat, all meat, poultry, and fish should be cooked to an internal temperature of 165 °F. Meat, poultry, and fish, as well as all potentially hazardous foods, should be held at 135 °F or above. The recommended serving temperature for meat is 150 °F–180 °F; for poultry the serving temperature is 165 °F–180 °F. The only way to know the internal temperature of a food is by using a thermometer.

A meat thermometer can be used when roasting larger pieces of meat. It should be placed in the thickest part of the meat, avoiding bone or fat. The meat thermometer should be left in the meat throughout the cooking process.

A stem-type thermometer is used to test the temperature of any food by inserting it into the thickest part, avoiding bone or fat, or the cooking pan. The thermometer is then read when the temperature registers. It should not be left in the meat during cooking. Remember to clean and sanitize the stem of the thermometer before using it for another food.

Thawing Frozen Meat

Thawing frozen meats is another food safety concern. Frozen meats, like turkey, beef roasts, or chicken, should be thawed in the refrigerator at 40 °F or less. Of course, this may take 24 hours or more, so it is important for the manager to plan the production schedule and determine when the food should be moved from the freezer to the refrigerator. Never thaw any food product by leaving it at room temperature or placing in warm water.





Meats, Poultry, Fish and Healthy School Meals

Menu-Planning Practices for Healthy School Meals

Meat, poultry, and fish products are from the group of foods that also includes dry beans, eggs, and nuts. Breakfast and lunch menus at school include choices from the meat group. These main dishes should be prepared so they appeal to students and give them the nutrients they need.

Increase the variety of main courses offered.

- Plan more school-prepared items.
- Choose more lowfat, low-sodium products.
- Use lower fat meats, poultry, and fish.
- Where choices are not offered, limit processed meats/meat alternates that have not been modified to reduce fat and/or sodium to once a week.

Purchasing Practices for Healthy School Meals

- Purchase cold cuts, deli meats, and hot dogs with no more than 3 grams of fat per ounce.
- Purchase water packed tuna fish instead of oil-packed.
- Purchase polyunsaturated and/or mono-unsaturated oils, such as canola, corn, cottonseed, olive, peanut, safflower, soybean, or sunflower oils.
- Do not purchase lard.
- Avoid hydrogenated oils/fats which contain trans fats.

Children should eat 3 to 6 ounces from the meat and beans group each day.

Foods in the meat, poultry, fish, eggs, nuts, and seed group provide nutrients that are vital for health and maintenance of your body. However, choosing foods from this group that are high in saturated fat and cholesterol may have health implications.

According to *MyPyramid*:

- Meat, poultry, fish, dry beans and peas, eggs, nuts, and seeds supply many nutrients. These

include protein, B vitamins (niacin, thiamin, riboflavin, and B6), vitamin E, iron, zinc, and magnesium.

- Proteins function as building blocks for bones, muscles, cartilage, skin, and blood. They are also building blocks for enzymes, hormones, and vitamins. Proteins are one of three nutrients that provide calories (the others are fat and carbohydrates).
- The B vitamins found in this food group serve a variety of functions in the body. They help the body release energy, play a vital role in the function of the nervous system, aid in the formation of red blood cells, and help build tissues.
- Vitamin E is an anti-oxidant that helps protect vitamin A and essential fatty acids from cell oxidation.
- Iron is used to carry oxygen in the blood. Many teenage girls and women in their child-bearing years have iron-deficiency anemia. They should eat foods high in heme-iron (meats) or eat other non-heme iron containing foods along with a food rich in vitamin C, which can improve absorption of non-heme iron.
- Magnesium is used in building bones and in releasing energy from muscles.
- Zinc is necessary for biochemical reactions and helps the immune system function properly.

There is some fat in all meat and poultry products. Some products have more fat than others. Some food preparation techniques add fat during cooking. For today's healthy school meals, it is important to follow recipes that limit the amount of fat in a food.

This lesson includes basic culinary techniques which are used to prepare meat, poultry, and fish. The techniques describe ways to prepare meat, poultry, and fish main dishes so that they have only a moderate amount of fat but plenty of flavor.





Culinary Principles

A culinary technique is a step-by-step way to prepare a quality food product. Using a good recipe and the right culinary technique, a meat, poultry, or fish main dish can be prepared to meet quality standards. Seasonings and spices can be used to add variety to the flavor of cooked meats. Recipes should be used as a guide when adding seasonings.

This lesson is about basic cooking of meat, poultry, and fish from scratch. The term *meat* includes beef, pork, lamb, and veal. The principles and culinary techniques can be used with all of these meats, as well as with turkey or chicken, and with fish.

As foodservice professionals, it is important to know basic principles of cooking meats. These principles explain why a recipe works.

Cooking meat and poultry

- changes its texture,
- changes its flavor,
- changes the way it looks, and
- kills any bacteria that might be in the raw product.

Check for Doneness

The only way to be sure a meat or poultry product is cooked until done is to use a meat thermometer or a stem-type thermometer to test internal temperature of the product. Meat, poultry, and fish should be cooked until the internal temperature in the thickest part reaches 165 °F. The temperature of meat, poultry, and fish is very important to be sure that the food is safe to eat. Undercooking a meat, poultry, or fish product could lead to an outbreak of foodborne illness or food poison.

Cooking always causes loss of moisture. This is called cooking loss and results in shrinkage. As a meat gets more done it loses more moisture. This is why it is so important to follow the recipe for cooking temperature and cooking time.

Overcooking a meat, poultry, or fish dish will cause

- the yield to be less than the number of servings planned;

- the flavor to be lost;
- the meat to be tough because the protein; structure has been changed; or
- the meat, poultry, or fish product to be dry.

Some people think that cooking meat and poultry in an oven on high heat seals in the juices and causes less shrinkage. However, this is generally not true. To obtain a tender product, it is best to cook meat and poultry at a constant moderate temperature. The recipe will give the right temperature for the product. A rule of thumb is to cook meat and poultry in a conventional oven at 350 °F. Both the temperature and time should be adjusted for a convection oven. Generally, the temperature for a convection oven should be reduced by 25 °F–50 °F from that of a conventional oven. The time may need to be reduced also (about 25% less cooking time).

A Tender Product

Everyone has heard the expression, “It’s a tough old bird.” That old saying explains that age is the main reason that meat becomes tough. As an animal becomes older, the connective tissue that holds the flesh together gets coarser and has less moisture, making the meat tougher. To make meat or poultry tender, several things can be done to change the connective tissue.

- Cook the meat or poultry by moist heat (add liquid and cook slowly).
- Break up the connective tissue by grinding, chopping, or tenderizing in some other mechanical way (example is ground beef).
- Add a tenderizer. Marinating meat and poultry can help to tenderize the meat as well as add flavor.

Reduce the Fat

All meat, poultry, and fish has some fat in the meat. Here are some suggestions for reducing the fat when cooking meat and poultry.

- Cook ground beef until done and then drain it well using a colander. Current USDA recommendations state that ground beef should be drained but not rinsed after it is cooked.



Culinary Principles, *continued*

Rinsing is not recommended because it causes the meat to lose flavor and causes the temperature to drop into the Danger Zone (41 °F–135 °F).

- Cook ground beef patties in the oven on a rack so the fat can drain off. Another option is to use a pan liner and drain the patties after cooking.
- Trim off visible fat on any solid meat product before it is cooked. Because fat carries flavor, reduced fat recipes may need to have added seasonings. Follow the recipe.
- Drain off any fat and liquid from cooked meat before it is placed in the warmer or on the serving line. Do not let meat remain in the fat from cooking.
- Cool cooking liquids to be used for a sauce in the refrigerator so the fat hardens. Then remove the fat and reheat the remaining flavored liquid to prepare a sauce, gravy, or serve as is.
- Cook chicken without the skin to reduce the fat. Poultry carries a layer of fat just under the skin. It is recommended the skin not be eaten to reduce the fat in a poultry product. This means that either the poultry product should be skinned before cooking or skinned by the customer before eating. When cooking skinless poultry, such as skinless chicken breasts, follow a recipe that includes a way to prevent the skinless pieces from drying out. This may include marinating the breasts before cooking, cooking in a sauce, or using a recipe such as oven-fried chicken.

Color Changes

The color of meat comes from a substance in the blood of the animal. When beef is exposed to air, the red color becomes stronger. The bright red color does not indicate freshness. This same red color becomes brown when the meat is cooked because of heat. In cured ham or corned beef brisket, the red color stays in the meat because of the curing process.

When meat spoils, the red color becomes brownish or gray. Never prepare meat that has an off-color or a bad smell.

Culinary Techniques Used to Cook Meat, Poultry, and Fish

There are many different culinary techniques used to cook meat, poultry, and fish. They can be organized into two groups.

- Culinary techniques that use dry heat
- Culinary techniques that use moist heat

Dry-heat Cooking

Dry-heat cooking has no added moisture and is used for more tender pieces of meat, poultry, and fish. These culinary techniques include broiling and grilling, roasting (or baking), and cooking with heated fat, such as frying or pan-grilling.

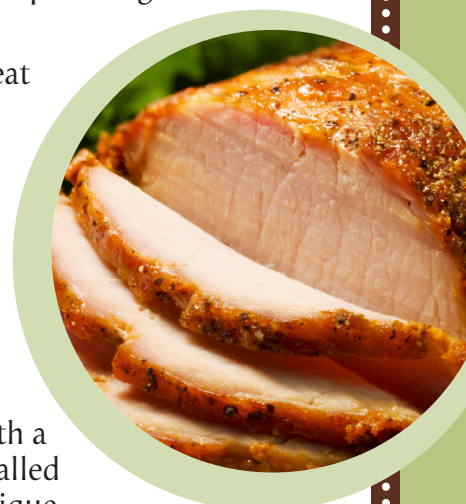
Dry-heat techniques can be used to cook

- meats like some roasts, steaks and other quality cuts of beef, and ground meats,
- ham and other pork products,
- turkey and chicken, and
- fish filets and nuggets.

Moist-heat Cooking

Moist-heat cooking includes a variety of techniques where some liquid is added during the cooking process. The culinary techniques include braising, stewing, and poaching. Meat, poultry, and fish that is tougher has to be cooked using moist-heat culinary techniques in order to tenderize it. Tender products like fish and poultry can also be cooked by a moist-heat culinary technique such as poaching.

Braising and stewing are combinations of a dry-heat and moist-heat techniques. The first step is the dry-heat technique called searing which provides flavor and color. Then liquid and flavorings are added and the product is simmered until done. When this technique is used with a large piece of meat it is called braising. The same technique used for smaller pieces of meat, poultry, or fish is called stewing.





Flavor Enhancement

The flavor of meat, poultry, or fish is affected by the animal's diet. For example, when pigs are fed on peanuts the flesh has a slightly nutty flavor. Sometimes this is advertised for country hams. No matter what the animal has been fed, to get the best flavor the recipe must be followed.

The flavor of meat, poultry, and fish is also affected by the fat in the product. Flavorful oils in the flesh are in the fat part of the meat. To reduce the amount of fat in school meals, it is best to use meat and poultry products that contain less fat. Remember, when fat is taken out, flavorings and seasoning become even more important. Select and use recipes that include seasonings that add flavor to meat and poultry dishes.

Some recipes call for meat, poultry, or fish to be marinated. This is a good way to add flavor by soaking the product in a mixture of seasonings and liquid before it is cooked. A marinade, the liquid for soaking the meat or poultry, usually has three parts.

1. A small amount of oil keeps the meat moist
2. An acid ingredient helps to add flavor (examples are vinegar, lemon juice, or other fruit juice)
3. Flavorings such as spices, herbs, and flavorful vegetables like onions or celery add flavor

The meat is placed in the marinade, covered, and refrigerated for a few hours or overnight. It is very important to keep meat cold (below 41 °F) while it is in a marinade.

A marinade should never be reused for other meats but should be discarded after the meat is removed to be cooked. An example of a product that could be marinated is chicken breasts or cut-up chicken. The chicken can be marinated overnight in the refrigerator, then the marinade drained off, and the chicken baked or oven-

fried. Some recipes call for the marinade to be heated to the boiling point, reduced by simmering, and then served with the meat. This is acceptable since the marinade has been heated thoroughly and any bacteria destroyed.

A creative idea is to use dry marinades or rub to add flavor to meat and poultry products. A dry marinade is usually a mixture of spices rubbed on the meat or poultry before cooking. No liquid is used. This is a great flavoring technique that adds no fat. Look for recipes for dry marinades. In school lunch menus, a dry marinade would be a great way to flavor unbreaded chicken.

Because salt draws out the moisture in a meat, it should not be added to a marinade. If a recipe calls for salt, add it to the meat just after it has been cooked.



Culinary Technique Dry Heat - Roasting or Baking

Roasting or baking is cooking meat, poultry, or fish in the oven without liquid and without a cover on the cooking vessel.

1. Remove all visible fat.

2. Season.

Follow the recipe. Add appropriate seasonings and flavorings to replace flavor lost when fat is removed. If a meat thermometer is used, place it in the thickest part of the meat, away from bone or fat. Since salt penetrates meat only about an inch and retards browning, most recipes suggest adding salt at the end of cooking. Do not add salt unless the recipe calls for it.

3. Place in the cooking utensil.

Do not cover and do not add any liquid. Place meat on a rack when appropriate so fat will drain and hot air can circulate on all sides.

4. Roast or bake in a slow oven until the internal temperature is at least 165 °F (or a higher temperature specified in the recipe).

Follow the recipe for the oven temperature. Some recipes for large pieces of meat or poultry suggest adding a mirepoix to the pan during the last half hour of roasting.

5. Remove from the oven and serve.

For large pieces of meat, like a turkey or a large roast, allow the meat to sit in a warm place for about 15 minutes before carving or slicing. This makes the meat firmer, juicier, and easier to slice. Meats should be sliced across the grain.

6. Hold cooked meat and poultry the correct way.

If the meat or poultry will not be served immediately, it should be covered and kept in a warmer at the correct temperature or chilled in the refrigerator. Never hold a meat product at room temperature.

Try these USDA Recipes that include this Culinary Technique

Barbecued Chicken..... D-11

Country Fried Steak D-21

Meat Loaf D-27

Oven Fried Chicken D-29

Salisbury Steak D-33

Honey-Lemon Chicken..... D-44

Baked Cajun Fish D-46

Baked Fish Scandia D-47



Culinary Technique Dry Heat - Sautéing

Sautéing is using high heat and a small amount of fat to cook meat, poultry, and fish rapidly. Searing and stir-frying are also a sautéing technique.

1. Prepare the meat or poultry by making sure it is dry.

If a marinade has been used, drain it thoroughly and pat the food dry. Food with a lot of moisture will steam rather than sauté.

2. Add oil to the pan according to recipe.

A tilting braising pan is ideal for this technique. Measure the oil carefully.

3. Heat the oil; add the meat, poultry, or fish.

The meat, poultry, or fish pieces should be added to the pan in a single layer. If the pieces are touching, the product will steam, not sauté.

4. Cook the meat by gently turning until browned on all sides and cooked evenly.

Some recipes suggest that the cooked meat be removed from the pan and the remaining flavored juices be used to make a sauce. Follow the recipe.

5. Hold cooked meat and poultry the correct way.

Sautéed meals should be cooked in batches just-in-time for service. Covering a sautéed food during holding causes it to steam and the advantages of the sauté technique are lost. Serve immediately. Never hold a meat product at room temperature.

Try these USDA Recipes that include this Culinary Technique

Chicken Stir-Fry D-39

Beef Stir-Fry D-39A

Pork Stir-Fry D-39B

Chicken Fajitas D-40



Culinary Technique Moist Heat - Braising and Stewing

Braising and stewing are a combination of dry-heat and moist-heat cooking used for less tender cuts of meat. Braising is used for large cuts of meat. The same technique is called stewing when used for bite-sized pieces of meat, poultry, or fish.

1. Trim fat and prepare meat according to the recipe.

2. Sear the meat on all sides.

Searing meat before braising or stewing adds color and flavor. Follow the recipe to use a small amount of oil or preferably, no oil. Brown the meat on all sides in a hot pan. For large pieces of meat, use a pan in the oven or a steam-jacketed kettle. For smaller pieces, use a tilting braising pan, a grill, or brown in a hot oven.

3. Remove the meat from the pan and add a mirepoix.

Some recipes call for a mirepoix to be added to the pan and cooked. Follow the recipe.

4. Add the seared meat back to the cooking pan along with the liquid for cooking.

When a steam jacketed kettle is used for braising or stewing, more liquid will be needed than when using a roasting pan in the oven or when using a tilting braising pan. Follow the recipe and avoid using too much liquid, which weakens the flavor of a sauce made with the liquid.

5. Cover tightly and simmer until tender.

Follow the recipe for the temperature and time for the equipment being used. Do not allow the liquid to boil. The size of the cut of meat and the kind of meat will also influence the cooking time. Braised or stewed meats are done when they are tender.

6. Remove the meat from the cooking liquid.

Some recipes suggest the cooking liquid be cooked an additional time to reduce the volume and concentrate the flavor. The cooking liquid may also be thickened with a roux or slurry. How to thicken using a roux or slurry is described in the lesson on Preparing Sauces.

7. Hold cooked meat and poultry the correct way.

If the meat, poultry, or fish will not be served immediately, it should be covered and kept in a warmer at the correct temperature or chilled in the refrigerator. Never hold a meat product at room temperature.

Try these USDA Recipes that include this Culinary Technique

Beef Stew D-14

Chili con Carne with Beans D-20

Sweet and Sour Pork D-36





Quality Standards

Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. The quality standards shown on the score card can only be reached when the recipe is followed exactly. The school nutrition manager and assistant who prepared the food should make the determination whether the food product meets the standards on the Quality Score Card. If the decision is made that the food does not meet the quality standards, do the following things:

- Substitute another meat or poultry item on the serving line. Follow the school district procedure for menu substitutions.
- Use the product in another way, if possible, in order to avoid wasting the food. For example, if a meat product has been overcooked, it could possibly be used as an ingredient in a soup, casserole, or some other dish where additional seasonings are added. For meat, poultry, and fish products, this determination must be made by the manager and the assistant using their best knowledge of food production and food safety. It would not be appropriate to use a substandard food product in another dish where it would also not meet quality standards.

Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.





Quality Score Card for Meat, Poultry, and Fish

Date: _____ Name of Menu Item: _____

Proudly Prepared by _____

Quality Scored by _____

Directions: When the food is ready to serve, use this Quality Score Card to evaluate the quality. Mark **YES** when the food meets the standard and **NO** when it does not. Mark **NA** (Not Applicable) when a specific quality standard does not apply to the food being evaluated. Use the **COMMENTS** section to explain why a food does not meet a standard.

Remember, if a food does not meet the quality standards, it should not be placed on the serving line.

| Quality Standard | Yes | No | NA | Comments |
|--|-----------------------|-----------------------|-----------------------|----------|
| Appearance | | | | |
| Product appears moist. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Product has been trimmed of any excess visible fat. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Product has been drained and no cooking fat is visible. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Color is a rich brown, characteristic of the meat, poultry, or fish item. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Browning is even and correct for the product (not too brown). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Portions are uniform in size. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Texture or Consistency | | | | |
| Product is tender and easily chewed. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Product can be pierced with a fork with minimum pressure. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Product is firm and moist. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Flavor and Seasoning | | | | |
| Product is juicy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Flavor is fresh and appropriate for the product (no refrigerator taste or freezer burn). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Seasonings enhance but do not overpower the taste (no greasy taste, not too much salt). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Service Temperature | | | | |
| Meat products served hot - 150 °F–180 °F or above | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Poultry products served hot - 165 °F–180 °F or above | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |
| Meat or poultry products served cold – 40 °F or below | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | |





Culinary Application and Practice Activity

Culinary Practice is an activity designed to give foodservice assistants an opportunity to practice preparing meat, poultry, and fish. Use the Culinary Practice Score Card for the activity.

1. Foodservice assistants may work as partners or individually, depending on the directions from the manager. One partner should be someone who cooks and the other, someone who has other responsibilities. Both foodservice assistants should work together to complete the Culinary Practice.
2. The manager and foodservice assistants should discuss the Culinary Practice for Preparing Meat, Poultry, and Fish. Make a note of the date the Culinary Practice should be completed and discussed with the manager.
3. The manager will approve the recipe to be used for the practice. The recipe should use one of the culinary techniques described in this lesson. Review the steps of the culinary techniques:
 - Culinary Technique: Dry Heat - Roasting or Baking
 - Culinary Technique: Dry Heat - Sautéing
 - Culinary Technique: Moist Heat - Braising and Stewing
4. The manager and foodservice assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Cards.





Culinary Practice Score Card for Meats, Poultry, and Fish

Name(s): _____

(This practice activity may be completed individually or with a partner. The manager will make this assignment at the end of the lesson.)

Purpose: The purpose of the activity is to practice Preparing Meats, Poultry, and Fish.

Culinary Technique: (Identify the culinary technique that you will use. Refer to the previous pages for a description of each technique.)

Name of the Recipe: _____

Date for Production: _____

Directions: The manager and foodservice assistant(s) will select a recipe for meat, poultry, or fish that includes one of the culinary techniques described in this lesson.
Check **YES** or **NO** when each step is completed.

| | Yes | No |
|--|-----------------------|-----------------------|
| Plan food production for just-in-time service. | | |
| Did you plan food production for just-in-time service? | <input type="radio"/> | <input type="radio"/> |
| Review the Quality Score Card and the recipe. | | |
| Did you review the recipe so you are familiar with the ingredients, equipment, and directions? | <input type="radio"/> | <input type="radio"/> |
| Did you review the Quality Score Card so you will know how the finished product should look and taste? | <input type="radio"/> | <input type="radio"/> |
| Organize equipment and ingredients. | | |
| Did you assemble all the equipment needed? | <input type="radio"/> | <input type="radio"/> |
| Did you assemble all of the ingredients needed? | <input type="radio"/> | <input type="radio"/> |
| Use the right culinary technique. | | |
| Did you use the culinary technique correctly? | <input type="radio"/> | <input type="radio"/> |
| Deliver a quality product. | | |
| Did you use the Quality Score Card to evaluate the product? | <input type="radio"/> | <input type="radio"/> |
| Did you review the product with the manager? | <input type="radio"/> | <input type="radio"/> |
| Discuss the following questions with the manager before serving. | | |
| How can the appearance of the food be improved? | | |
| How can the flavor or taste of the food be improved? | | |
| How can the texture and tenderness of the food be improved? | | |
| How can the service temperature of the food be improved? | | |

The manager's signature indicates this practice has been completed satisfactorily. The manager should keep this on file or submit it to the central office to document the completion of the lesson.

Name of Manager: _____ **Date Signed:** _____



References

- Culinary Institute of America. (2002). *The professional chef* (pp. 400-415, 450-461, 492-509, 526-538). New York: John Wiley & Sons, Inc.
- Molt, M. (2006). *Food for fifty* (pp.). New Jersey: Pearson Education, Inc.
- National Food Service Management Institute. (2005). *Healthy cuisine for kids*. University, MS: Author.
- U.S. Department of Agriculture, Food and Nutrition Service. (n.d.) *Inside the pyramid*. Washington, DC: Author.
- U.S. Department of Agriculture, Food and Nutrition Service. (n.d.) *Quality food for quality meals*. Washington, DC: Author.
- U.S. Department of Agriculture, Food and Nutrition Service. (2007). *HealthierUS school challenge: Recognizing nutrition excellence in schools*. Washington, DC: Author.
- U.S. Department of Agriculture, Food and Nutrition Service. (2007, January). *The road to SMI success: A guide for school food service directors*. Washington, DC: Author.
- U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (1996). *Choice plus: A food and ingredient reference guide*. Washington, DC: Author.
- U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2005). *USDA recipes for child care*. University, MS: Author.
- U.S. Department of Agriculture, Food and Nutrition Service, & National Food Service Management Institute. (2006). *USDA recipes for schools*. University, MS: Author.
- U.S. Department of Health and Human Services, & U.S. Department of Agriculture. (2005). *Dietary guidelines for Americans 2005* (6th ed.). Washington, DC: Author.



**National Food Service Management Institute
The University of Mississippi
P.O. Drawer 188
University, MS 38677-0188
www.nfsmi.org**

**©2009 National Food Service Management Institute
The University of Mississippi**