Instructor’s Manual

Project Coordinator
Allyson Russell, CBAS, MBA

Executive Director
Katie Wilson, PhD, SNS

National Food Service Management Institute
The University of Mississippi

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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.

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.

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Introduction to
Preparing Healthy School Meals

Time: 1 hour

National Food Service Management Institute
The University of Mississippi
## Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1: Improve the quality of school meals served.</strong></td>
<td></td>
</tr>
<tr>
<td>Culinary terms</td>
<td>Review culinary terms with participants.</td>
</tr>
<tr>
<td>Five Step Process</td>
<td>Introduce the Five Step Process.</td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Introduce Quality Score Card.</td>
</tr>
<tr>
<td><strong>Objective 2: Improve the appeal of school meals served.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3: Incorporate the principles of the <em>Dietary Guidelines for Americans</em> into the planning and preparation of school meals.</strong></td>
<td></td>
</tr>
<tr>
<td>Five Step Process</td>
<td>Discuss each step in the Five Step Process.</td>
</tr>
<tr>
<td>Basic Culinary Principles</td>
<td>Define and discuss the principles of <em>mise en place</em>.</td>
</tr>
<tr>
<td>Five Step Process</td>
<td>Five Step Process Activities: Allow participants to answer the questions using the descriptions of the five step process in preparing quality food.</td>
</tr>
<tr>
<td>Video</td>
<td>Show video clip from <em>Culinary Techniques Introduction to Healthy School Meals</em>.</td>
</tr>
</tbody>
</table>
**Preparation Checklist**

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve equipment and gather supplies</td>
<td></td>
</tr>
</tbody>
</table>

**Materials Needed:**

- TV/DVD combo on cart
- *Culinary Techniques* video segments from www.nfsmi.org
- Nametags, optional

**Make copies of Participant’s Workbook**
Instructor’s Script

Course Information for Instructor (1hr)
The Culinary Techniques Instructor’s Manual is a course where the lessons can be taught individually or collectively. Breaks are not included in the following outline:

Day 1: A.M.
Introduction to Preparing Healthy School Meals
Preparing Fruits
Preparing Vegetables
Preparing Salads

Day 1: P.M.
Preparing Meat, Fish, and Poultry
Preparing Sandwiches
Preparing Dry Beans and Peas
Preparing Pasta, Rice, and Grains

Day 2: A.M.
Preparing Soups
Preparing Dairy Products
Preparing Eggs
Preparing Sauces

Day 2: P.M.
Preparing Cakes, Cookies, and Pastries
Preparing Yeast Breads
Preparing Quick Breads
Seasonings

Prior to conducting a successful workshop, the trainer should:

- Review local, state, and federal food safety regulations.
- Understand culinary techniques and principles of cooking for each segment.
- Review the instructor’s guide and be familiar with how to demonstrate culinary techniques or provide discussion during activities.
- Review the grocery and equipment list for each lesson and obtain food, supplies, and equipment necessary to conduct activities.
- Make copies of all activity handouts for each participant or groups of participants.
- Set up a demonstration table (terry cloth towels and a small bucket of sanitizer are recommended for demonstrations involving foods).
- If possible, use a visual projector to display activities from demonstration table to screen. This is especially useful for large groups.
In *Culinary Techniques for Healthy School Meals*, the cold holding temperature is stated as 41 °F or below. According to the 2013 *FDA Food Code*, the cold holding temperature is 41 °F or below.

**Introduction**

**SAY:** Welcome to the introductory lesson for *Culinary Techniques for Healthy School Meals*. This is the first of a series of lessons designed to help school nutrition teams prepare healthier school meals that appeal to the taste of today’s students. School menus should be planned to be consistent with the principles of the *Dietary Guidelines for Americans*. Well-planned menus and carefully purchased food items bring the right foods in the back door. However, what happens to food from the back door of the kitchen to the serving line is the responsibility of the school nutrition team. The school nutrition manager and assistants are the school nutrition team. The team’s job is to prepare and serve nutritious, quality meals at school. Team members hold the key to healthy school meals. This series of lessons will help every team member gain more knowledge about food production and learn new culinary skills. As team members learn more about nutrition, food production, and culinary techniques, every school nutrition program will improve.

**ASK:** What changes have already been made in your school nutrition program to serve meals that are consistent with the *Dietary Guidelines for Americans*?

**ASK:** What changes have already been made in your school nutrition program to continue to improve the quality of the foods that are served?

**SAY:** In this lesson, we will cover the following objectives:

1. Incorporate the principles of the *Dietary Guidelines for Americans* into the planning and preparation of school meals.
2. Improve the quality of school meals served.
3. Improve the appeal of school meals served.

**SAY:** This introductory lesson is the first in a series of lessons that present culinary techniques for food production to provide healthy school meals. Each lesson includes some important terms that can help with understanding new information which can be found in the Participant’s Workbook. Some important terms related to this lesson include:

- **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.
- **School Nutrition Assistant:** Throughout this series of lessons, this title is used to refer to all employees in the school kitchen with the exception of the manager. Some school districts use the term cooks, technicians, or school nutrition employees.
- **Just-In-Time Preparation:** Preparing a menu item in small enough amounts 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 period of time. Other terms that mean the same thing are batch cooking and cooking to the line.

- Manager: Throughout this series of lessons, this title is used to refer to the person who is responsible for the day-to-day operation of the school nutrition program at the school site.

- Mise en Place (meez-un-plahss): A French term used by chefs and other culinary professionals to describe all the different steps 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.

- Nutrients: The substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.

- School Nutrition Team: The school nutrition team includes the school site manager and all the school nutrition assistants.

**SAY:** Gathering your mise en place is an important step in food production. Equipment that may be needed includes produce sink, cutting boards, slicing equipment, knives, and refrigeration.

Be sure to wash, rinse, sanitize, and air-dry all food-contact surfaces, equipment, and utensils that will be in contact with produce, such as cutting boards, knives, sinks and your hands.

**SAY:** Quality standards for different foods include appearance, texture, flavor, and ideal service temperature. The Quality Score Card(s) included in each lesson should be used to evaluate food products before they are served. In a moment, we will take a closer look at the Quality Score Card.

**SAY:** To prepare quality foods, the Five-Step Process should be utilized. Step 1 is to plan food production for just-in-time service. It is the responsibility of the cook to follow the planned production schedule. Since most foods taste their best immediately after they are prepared, the production schedule times food preparation so that foods are prepared as close to the time of service as possible. For many foods, this means planning the final steps for production to be done during the service period so food is cooked and served continuously. Many different menu items from broccoli, to toasted cheese sandwiches, to spaghetti noodles are at their peak of quality when cooked just-in-time for service. Just-in-time is the term used in all the lessons to mean cooking in small batches as needed, during the service period. Some school nutrition personnel use the terms cooking to the line or batch cooking to mean the same thing. In other words, foods are cooked as they are needed on the serving line.

**NOTE TO INSTRUCTOR:** Quality Score Card should correspond to the recipe selected for the Five-Step Process activity.

**DO:** Refer to the Quality Score Card for Meat, Poultry, and Fish found in the Participant’s Workbook.
SAY: Step 2 is review the Quality Score Card and the recipe. School nutrition professionals have quality standards for various menu items just like professionals in other fields. The quality standards for foods can be grouped into those that tell about:

- appearance (how the food should look when it is prepared according to a recipe),
- texture and consistency (how the food should feel in the mouth and how easy it is to cut),
- flavor (how the food tastes), and
- service temperature (the ideal temperature for serving the food).

SAY: The quality standards for a food are like a target. They are the goal of food preparation. In these lessons, the quality standards have been organized as Quality Score Cards for groups of foods. Before beginning food preparation, it is important to review the Quality Score Card to know how the finished product should look and taste. The second thing that should be reviewed is the recipe. Every profession has rules and procedures to follow. In school nutrition professions, the rules and procedures necessary for quality food production are described in recipes. The recipes used for these lessons are from the United States Department of Agriculture (USDA), Food and Nutrition Service and can be found at www.nfsmi.org. The cook should read the complete recipe before moving to the next step.

SAY: Step 3 is to organize equipment and ingredients. A well-organized cook saves time and energy by assembling all ingredients and equipment before starting food preparation. This process is called *mise en place* or *to put in place*. Use the recipe or directions to find out what is needed and then get together the equipment and ingredients. Stay organized during food production by keeping things in order and cleaning as needed. Professional chefs know that *mise en place* means more than just assembling ingredients and utensils. They explain that this term also means a state of mind. It means thinking about all the things that must be done during food preparation and thinking about how to handle situations that could arise during food production. To help school nutrition professionals move to this state of mind, the lessons include information about culinary techniques and why they work the way they do. Knowing why helps a professional cook prevent problems during food production and solve them when they do happen.

SAY: Step 4 is to use the right culinary technique. A professional uses the right culinary technique for the food that is to be prepared. Each of the lessons includes video demonstrations of one or more culinary techniques. The demonstration shows a step-by-step way of preparing the food to meet quality standards. To be sure to understand each step of a new culinary technique, it may be desirable to watch the video lesson more than one time. A recipe includes a description of the right culinary technique to use for that food. By learning the basic culinary technique and then following the direction on a recipe, the results will be a quality product.

SAY: Step 5 is to deliver a quality product. A professional cook evaluates each product using the Quality Score Card before it is placed on the serving line. By stepping back and taking an objective look at each product after it is prepared, culinary skills can be continually improved.
This is the way a professional chef becomes a master of food preparation skills. Sometimes it is helpful to have another school nutrition team member use the Quality Score Card to evaluate a product. This may be a more objective evaluation of the food. Remember, the food on the serving line represents the efforts of the whole school nutrition team, so everyone has a stake in preparing quality food. The Quality Score Card is a measure of success and it is a way to spot food production problems that need to be corrected. When a food does not meet quality standards, it should not be served. Several of the lessons include special information that will help determine why a food product did not meet standards and how to avoid the problem the next time.

Assessing the quality of all food products should be done before every service. Each lesson will include a reminder to use this Five-Step process.

**SAY:** Culinary Techniques for Healthy School Meals is a series of lessons that can be used by the school nutrition team as a group or by individuals on the team. Video clips are part of each lesson. The video clips demonstrate culinary techniques used by schools. After each lesson, there will be time to practice using what has been discussed and demonstrated. Each lesson includes a culinary practice that is a planned way for school nutrition assistants to practice using the new culinary techniques with the manager serving as their coach. The culinary practice is really a team activity because school nutrition assistants will work together during food production and will also work together to evaluate the food product. This series of lessons can have a positive effect on each person on the school nutrition team. Whether the school nutrition assistant is new to school nutrition or an experienced performer, continuing to learn and grow in the job is part of the professional commitment. To continue to improve school nutrition programs every person must be willing to learn new ways to produce quality foods, and be willing to evaluate their food products according to accepted standards. This series of lessons will give each person the information needed to produce nutritious, quality meals; however the commitment to use the information must come from each team member.

**SAY:** Let’s discuss some basic culinary principles. Earlier we discussed *mise en place*, the French phrase that means, to *put in place*. Culinary professionals use this phrase to describe the steps that have to be done to get ready to prepare a dish or menu item. Everything you prepare in your kitchen requires a series of steps. Often, these steps are outlined in the form of a recipe, and give you the basic information you need to begin thinking about your *mise en place*.

**SAY:** To prepare for cooking, chefs consider a thorough and complete *mise en place* essential to meal preparation success. *Mise en place* is a collection of good work habits. It takes planning, effort, and practice to develop any habit. Once these good habits are established, you will be more organized and efficient. You’ll be more confident about your work and it will be of better quality. Plan your work by selecting the recipes to be prepared each day. Read over the recipes so that you have a basic idea of what you need to do to complete the recipe. Pay attention to things like how long foods need to cook or cool and whether you need special equipment. Prioritize your work by utilizing more advanced *mise en place* skills, including the ability to prioritize work so that you are doing the right things at the right time, and the ability to organize your work so that you don’t waste time. As you
write your *mise en place* list, certain activities need to take place at certain times and some tasks can
be grouped together. Review your lists before you begin to work to be sure that you have properly
organized your work.

**SAY:** Collect all ingredients needed for each recipe. Organizing your *mise en place* involves all pre-prep-
aration of all ingredients. Measuring ingredients, washing, trimming, cutting ingredients, and
pre-preparation of ingredients such as stocks or sauces are examples of *mise en place*.

**SAY:** Collect all tools and prepare equipment. Small tools that might be needed:
- Knives
- Cutting boards
- Spatulas
- Spoons
- Service utensils
- Steam table pans
- Sheet pans

Consider equipment that might need to be prepared in advance of cooking or preparation:
- Preheat ovens
- Assemble mixer
- Assemble food processor
- Line sheet pans

**SAY:** The work station is the place where you gather together the tools and ingredients you need to prepare
your *mise en place*, cook, or serve foods. When you set up a work station properly, you should not
have to leave the area while you work. Use your *mise en place* lists as reminders so that you don’t have
to make several trips to get what you need or retrieve something you forgot. The way you set up a
work station depends upon the type of work you need to do. You need different tools and ingredi-
ents while you are preparing your *mise en place* than you will when you are preparing foods to serve.
You need holding containers when you are preparing foods, pots and pans while you cook, and plates
when you serve. You may also need a variety of hand tools, such as spoons, whisks, spatulas, peelers,
or ladles. Establish a work flow. Once you have all the ingredients, tools, and equipment you need,
take the time to arrange them so that they are easy to reach as you work. You should also try to put
them into a logical order. This order is known as a *work flow*. For example, if you are peeling and
chopping onions, you might put all the unpeeled onions in a bucket on the left side of your work
station. Next to that bucket, you’ll put a cutting board. You might put a container to hold the peels
above your cutting board and a container to hold the chopped onions to the right of the board.

**DO:** Five Step Process Activity: Use the recipe for Baked Cajun Fish in your Participant’s Workbook.
Using the descriptions of the “Five Step Process in Preparing Quality Food,” answer the questions
below. Refer to the Five Steps in your Participant’s Workbook.
Step 1: Plan food production for just-in-time service

ASK: Is this a food that should be prepared in batches during the service period (just-in-time for service) or can it be prepared and held?

FEEDBACK (Answers may include):
- **Main dishes** – Most processed meat products should be cooked in batches just-in-time for service.
- **Vegetables** – All fresh or frozen vegetables should be cooked just-in-time for service (in batches). Canned vegetables should be reheated and seasoned just-in-time for service. Most salads can be prepared and held chilled until time for service.
- **Fruits** – Some fruits and fruit dishes can be prepared ahead, some are served hot and some are chilled.
- **Breads** – Both yeast breads and quick breads should be prepared on a schedule so they are just out of the oven in time for service. They should not be baked hours ahead and held for long periods of time.

Step 2: Review the Quality Score Card and the recipe.

DO: Have participants review the Quality Score Card that best accompanies the recipe you selected for this activity.

ASK: What are the quality standards that describe how the food should look and taste when it is prepared correctly?

DO: Allow participants to share a few of the quality standards as written on the Quality Score Card.

ASK: What is the ideal service temperature for this item?

**NOTE TO INSTRUCTOR:** *Prior to activity, identify the hot and cold holding temperature requirements based on the state’s food code.*

Step 3: Organize equipment and ingredients.

ASK: What equipment will be needed to prepare the recipe?

**NOTE TO INSTRUCTOR:** *Equipment needs vary with the recipe selected for this activity.*

DO: Allow participants one minute to discuss with another school nutrition assistant what equipment is necessary to prepare recipe. Allow participants to share some of their answers with the group.

ASK: What ingredients will be needed to prepare the recipe?
NOTE TO INSTRUCTOR: The answers will depend on the recipe selected. Allow participants to share some of their answers with the group.

DO: Allow participants to practice pronouncing *mise en place* (pronounce it meez-un-plahss).

**Step 4: Use the right culinary technique.**

DO: Allow participants one minute to review recipe and how the recipe will be prepared. Use the directions on the recipe which describe the culinary technique.

SAY: The directions describe the culinary technique for the recipe. The *Culinary Techniques for Healthy School Meals* series of lessons will help school nutrition assistants learn about new culinary techniques and why they work to produce a quality food.

**Step 5: Deliver a quality product.**

DO: Divide participants into groups of two. Allow participants one minute to look at the recipe.

ASK: Based on your own experience,
- Describe how the product should look (appearance).
- Describe the texture or consistency it should have.
- Describe the flavor that the food should have.
- What would be the best way to serve this dish: hot or cold?
- Can you estimate the correct temperature for service?

SAY: Discuss your answers with other school nutrition assistants. In the *Culinary Techniques for Healthy School Meals* lessons, Quality Score Cards are provided for many different menu items and the ideal service temperature is always noted.

NOTE TO INSTRUCTOR: Depending on time available, allow groups to share responses.

DO: Show video clip from *Culinary Techniques Introduction to Preparing Healthy School Meals*. 
Preparing Fruits

Time: 1 hour
Preparing Fruits
# Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1: Improve the quality of fruits served.</strong></td>
<td></td>
</tr>
<tr>
<td>Culinary terms</td>
<td>Review culinary terms with participants.</td>
</tr>
<tr>
<td><em>Mise en place</em> and food safety</td>
<td>Discuss <em>mise en place</em> necessary for fruit production. Review FDA guidelines for washing fruit.</td>
</tr>
<tr>
<td>Handling fruit</td>
<td>Discuss Using, Handling, and Storing Fruits chart.</td>
</tr>
<tr>
<td>Handling fruit</td>
<td>Review receiving guidelines. Discuss storing guidelines including ethylene sensitive and ethylene producing fruits and vegetables.</td>
</tr>
<tr>
<td><strong>Objective 2: Improve the variety of fruits served.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3: Improve the appeal of fruits served.</strong></td>
<td></td>
</tr>
<tr>
<td>Preparing fruits</td>
<td>Review and discuss the basic principles of preparing fruits to maintain their healthy nutrients.</td>
</tr>
<tr>
<td>Preparing fruits</td>
<td>Review and discuss basic principles of preparing fruits to meet quality standards.</td>
</tr>
<tr>
<td>Preparing fruits</td>
<td>Discuss the Flavor Enhancement chart. Allow participants to taste at least 3 spices from the Fruit Flavor Enhancement chart.</td>
</tr>
<tr>
<td>Preparing fruits</td>
<td>Review handling guidelines for cut fresh fruit. Show video clip from <em>Culinary Techniques: Preparing Fruits.</em></td>
</tr>
<tr>
<td>Fruit salads</td>
<td>Review fruit salad and side salad guidelines. Show video clip from <em>Culinary Techniques: Preparing Fruit Side Dishes.</em></td>
</tr>
<tr>
<td>Baked fruit</td>
<td>Review baked fruit guidelines. Show video clip from <em>Culinary Techniques: Preparing Baked Fruits.</em></td>
</tr>
<tr>
<td>Topic</td>
<td>Task</td>
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<tr>
<td>------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Fruit sauce</td>
<td>Review fruit sauce guidelines. Show video clip from <em>Culinary Techniques: Preparing Fruit Sauces</em>.</td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Review Quality Score Card for Fruits.</td>
</tr>
</tbody>
</table>
## Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reserve equipment and gather lab supplies</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Materials needed:</strong></td>
<td></td>
</tr>
<tr>
<td>3-4 oranges</td>
<td></td>
</tr>
<tr>
<td>Label from a can of fruit packed in heavy syrup (large audience-include several labels)</td>
<td></td>
</tr>
<tr>
<td>Label from a can of fruit packed in light syrup or natural juice (large audience-include several labels)</td>
<td></td>
</tr>
<tr>
<td>Spices - selected from the Fruit Flavor Enhancement chart (approximately 3 spices)</td>
<td></td>
</tr>
<tr>
<td>Cutting board</td>
<td></td>
</tr>
<tr>
<td>Chef’s knife</td>
<td></td>
</tr>
<tr>
<td>Sectionizer (optional)</td>
<td></td>
</tr>
<tr>
<td>TV/DVD combo on cart</td>
<td></td>
</tr>
<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
<td></td>
</tr>
<tr>
<td>Nametags, optional</td>
<td></td>
</tr>
<tr>
<td>Make copies of Participant’s Workbook</td>
<td></td>
</tr>
</tbody>
</table>
Preparing Fruits
Instructor’s Script

SAY: Welcome to the preparing fruits section of the Culinary Techniques training. In this lesson, we will cover the following objectives:
1. Improve the quality of fruits served.
2. Improve the variety of fruits served.
3. Improve the appeal of fruits served.

SAY: We would like you to understand in this lesson that:
• Fruits provide important vitamins, minerals, and other nutrients.
• Fruits are low in fat.
• Fruits should be stored at the right temperature for best quality.
• Fresh fruits should be washed right before use and served in the largest acceptable serving pieces.
• Recipes require the right form (fresh, frozen, canned, or dried) to be successful.

DO: Refer to the important terms related to this lesson which can be found in the Participant’s Workbook.
• Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• Culinary Technique: A step-by-step food preparation method. The culinary techniques described in this lesson include preparing fresh fruits and baking fruits.
• Ethylene Gas: A naturally occurring gas produced when some fruits and vegetables begin to ripen.
• Just-In-Time Preparation: Preparing a menu item in small enough amounts that it will be at its peak of quality when placed on the service line. This preparation schedule avoids holding any food for a long period of time. Other terms that mean the same are batch cooking and cooking to the line.
• Mise en Place (meez-un-plahss): A French term used by chefs and culinary 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.
• Nutrients: The chemical substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.
• Seasonal Produce: Fruits and vegetables that are at their peak of production at a particular time of the year. Typically this produce is more flavorful and less expensive. Seasonality of produce will depend on region.
SAY: Before fruit production can begin, fruit must be properly washed for safety. Use the following guidelines when washing fruit.

1. Follow state or local health department requirements.
2. Wash hands using the proper procedure.
3. Wash, rinse, sanitize, and air-dry all food-contact surfaces, equipment, and utensils that will be in contact with produce, such as cutting boards, knives, sinks and your hands.
4. Wash all raw fruits and vegetables thoroughly before combining with other ingredients, including
   a. Unpeeled fresh fruits that are served whole or cut into pieces.
   b. Fruits that are peeled and cut to use in cooking or served ready-to-eat.
5. Wash fresh produce vigorously under cold running water with a scrub brush or by using chemicals that comply with the FDA Food Code. Packaged fruits labeled as being previously washed and ready-to-eat are not required to be washed.
6. Scrub the surface of film fruits using a clean and sanitized brush designated for this purpose.
7. Remove any damaged or bruised areas.
8. Label, date, and refrigerate fresh-cut items.

DO: Discuss Using, Handling, and Storing Fruits chart which can be found in the Participant’s Workbook.

NOTE TO INSTRUCTOR: Share with participants the importance of serving age-appropriate pieces to increase acceptability and possibly consumption.

SAY: It is important to keep fresh produce flavorful. When produce arrives at the back door, it should be in excellent condition. From that point on, the quality is controlled by the school nutrition assistants in the school kitchen. The quality of fresh produce, both fruits and vegetables, is affected by:

- **Temperature** - For every 10 °F increase in temperature beyond the recommended temperature, a produce item can lose half its shelf life. Store produce at the right temperature for the variety.
- **Product Rotation** - When produce is delivered, the date should be written on the box. Then, the oldest produce should be used first.
- **Storage Conditions** - Different fruits and vegetables should be stored according to recommendations from produce experts,
- **Proper Handling During Preparation** - Fresh produce, both fruits and vegetables, benefit from being prepared just in time for service.

NOTE TO INSTRUCTOR: Always observe the quality of the produce prior to using regardless of date. Sometimes, first-in produce will have a longer shelf life than last-in produce.

SAY: Some fresh fruits must be ripe before they are refrigerated or served. Some fruits ripen at room temperature. Once ripened, the fruits should be refrigerated. Fruits that ripen at room temperature include avocados, kiwi, nectarines, peaches, pears, and plums. Never refrigerate bananas.
NOTE TO INSTRUCTOR: Bananas may be refrigerated after ripening if it is to be used in baked goods.

SAY: Ethylene gas is naturally produced from some fruits and vegetables. Ethylene gas will cause certain fruits and vegetables to ripen and deteriorate quickly. Ethylene producing fruits and vegetables should be kept separate from ethylene sensitive produce.

Ethylene Producing Produce:

Apples*
Apricots *
Asparagus *
Avocados*
Bananas*
Cantaloupes
Cherimoya*
Figs
Guava
Honeydew melons
Kiwi
Mangos*
Nectarines *
Papayas *
Passion fruit*
Peaches*
Pears*
Persimmons/Plantains/Plums*
Prunes*
Tomatoes*

*Ethylene producing and ethylene sensitive produce
**Ethylene Sensitive Produce:**
Broccoli  
Brussels sprouts  
Cabbage Carrots  
Cauliflower  
Cucumbers  
Eggplant  
Grapes  
Green beans  
Leafy greens  
Lettuce  
Okra  
Peas  
Peppers  
Spinach  
Squash  
Sweet potatoes  
Watermelon

**SAY:** Menu planning practices should be focused on creating healthy school meals. Consider the following when planning menus:
- Increase the amounts and variety of fruits because fruits differ in nutrient content.
- Plan a vitamin C - rich fruit or vegetable daily.
- Offer cut-up fresh, frozen, canned, or dried fruit as a topping for yogurt.
- Offer fruit with more potassium often, such as bananas, prunes, prune juice, dried peaches, dried apricots, cantaloupe, honeydew melon, oranges, and orange juice.
- Offer fruit as snacks if you provide reimbursable snacks for an afterschool program.
- Frequently offer fresh fruits using a variety of presentations, such as orange smiles, apple wedges, fresh fruit cups, red and green grape combos, and banana halves.

**ASK:** How do you make orange smiles from whole oranges?

**FEEDBACK (Answers may include):** Cut the orange across the diameter first, and then cut into quarters. The white pith should NOT run the length of the orange wedge when sliced properly.

**DO:** Demonstrate the proper and improper way to cut oranges into orange smiles.
Preparing Fruits

SAY: To prepare healthy school meals, you need to purchase healthy school foods. For example:

- Purchase fruits canned in light syrup or natural fruit juices instead of heavy syrup.
- Purchase fresh fruits, when feasible, to substitute for canned fruits.
- Look to local farmers as an alternative for purchasing fresh produce.
  Check out www.farmtoschool.org for more information.

DO: Provide participants with a label from a can of fruit in heavy syrup and a label from a can of fruit in light syrup or natural fruit juice. Allow participants time to compare the nutrition facts label. Discuss the differences.

SAY: Children should eat 1 to 2 cups of fruit each day. According to MyPlate:

- Eating a diet rich in fruits and vegetables as part of an overall healthy diet may reduce risk for stroke and perhaps other cardiovascular diseases.
- Eating a diet rich in fruits and vegetables as part of an overall healthy diet may reduce risk for Type 2 diabetes.
- Eating a diet rich in fruits and vegetables as part of an overall healthy diet may protect against certain cancers, such as mouth, stomach, and colorectal cancers.
- Diets rich in foods containing fiber, such as fruits and vegetables, may reduce the risk of coronary heart disease.
- Eating fruits and vegetables rich in potassium as part of an overall healthy diet may reduce the risk of developing kidney stones and may help to decrease bone loss.
- Eating foods such as fruits that are low in calorie per cup instead of some other higher-calorie food may be useful in helping to lower calorie intake.

NOTE TO INSTRUCTOR: New meal pattern guidelines now require a student to take a serving of fruit or vegetable as part of a reimbursable meal. The 2010 Dietary Guidelines for Americans recommends fruit and vegetable intake based on calorie intake. For example, a 1,600 calorie per day diet should include 1 ½ cups of fruit and 2 cups of vegetables.

SAY: Fruits are packed with nutrients for children. Most fruits are naturally low in fat, sodium, and calories. None have cholesterol. Fruits are important sources of many nutrients. Fruits are an excellent source of vitamin C and contain vitamin A. They also contain important minerals. Dried fruits, such as apricots, prunes, and dates provide significant amounts of iron, which is one of the minerals most often deficient in children’s diets. Fruits are nature’s desserts. They are the ideal sweet because they are packed with nutrients but low in fat.

SAY: School meals need to be built with a large number of fruits, vegetables, and whole grains so students will choose foods from these groups. School nutrition professionals have a big responsibility because meals at school influence students while they are developing good habits for a lifetime. School meals help students get the nutrients they need for good health and growth. Plus school meals offer food choices to meet the school day nutrition needs of students.
Now that we know how healthy fruits are for children, let’s discuss the basic principles of preparing fruits to maintain their healthy nutrients. Follow these guidelines when preparing fruit:

1. Use fresh fruits at their peak of ripeness. Most fruits have the highest vitamin content when they are at their peak of ripeness. Heat and light can destroy the nutrient content. Fresh fruits taste their best when they are ripe. Fruits that are not ripe enough are generally tart when they should be sweet and crunchy when they should be soft. Less time spent in transportation from field to plate helps ensure a fresher fruit at its peak of flavor and nutrient content.

2. Wash fresh fruits in cool water before they are peeled or stemmed. Fruits can lose nutrients if they are bruised or cut and then put in water. Strawberries are a good example of fruit that should be washed before they are hulled. The skin may not be clean so washing before processing removes the dirt and pesticides. Fruits served with the skin left on should be washed carefully, this includes oranges and melons. Apples are covered with an edible wax that is not removed during washing. Wash apples in cold water. Bananas should also be rinsed in cold water before serving or peeling.

**NOTE TO INSTRUCTOR:** Apples should be washed in cold water to prevent the edible wax coating from turning white. One pound of wax covers 160,000 apples.

3. Cut fresh fruits in the largest pieces that are acceptable for serving, considering the age of the student. Avoid crushing fruits since this injures the fruit cells and causes more vitamin loss. When fruit is cut in many smaller pieces, more total surface area of the fruit is exposed and more vitamin C can be lost.

4. Follow the recipe or directions for preparing a fruit dish. Recipes or the general directions for preparing a fruit dish are based on well-accepted culinary techniques that preserve nutrients.

There are also basic principles of preparing fruits to meet quality standards. Follow these guidelines when preparing fruit:

1. Prepare fruit dishes so they have an appealing appearance. Follow the recipe or directions for preparing a fruit to maintain the correct color and shape of the fruit pieces. Some fruits, like peaches, bananas, apples, and avocados turn brown when they are cut and surfaces are exposed to air. This is called oxidation. An acid, like lemon juice, lime juice, pineapple juice, or orange juice slows browning. Notice that these juices are all good sources of vitamin C. A commercial product that contains vitamin C (ascorbic acid) can also be used to slow browning.

**NOTE TO INSTRUCTOR:** Salt water should not be used as an acid to prevent browning as this adds sodium to the fruit.

2. Prepare fruit dishes so they have the appropriate texture. Most fruits have a texture that is unique for that fruit. When the fruit doesn’t have that texture, it is unacceptable. Mushy apples or green bananas are not appealing and should not be served. The texture that is appropriate for a fruit varies. Kiwifruit should be soft while a fresh apple should be crisp. Cooked apples used
Preparing Fruits

for a fruit cobbler should be soft but not mushy. Raisins should be chewy. Follow the recipe or directions for exact cooking times to get the right texture. As a general rule, fruits should be cooked only for a short time. Most fresh fruits need to be kept refrigerated. However, avocados should not be refrigerated since it stops their ripening. Once they are ripe, they can be refrigerated for a short time to keep them fresh if they cannot be served immediately. Bananas should not be refrigerated. After bananas have been refrigerated, the skin darkens and they are unacceptable for use as a whole fruit on the serving line. Refrigerated bananas may be peeled and used in fruit salad or in a baked product. Frozen fruits should also be used at their peak of freshness. Thaw frozen fruits in the refrigerator. Some frozen fruits can be served while they still contain ice crystals; this helps retain their shape. Frozen strawberries and other berries can be added to a fruit mixture before they are completely thawed or they can be placed as a choice on a salad or fruit bar.

3. Prepare fruit dishes for good flavor typical of the main fruit ingredients. Recipes that include fruits often have many other ingredients, including spices. The other ingredients should complement the fruit but not overpower it. The flavor of a fruit is affected by freshness and added seasonings.

4. Serve fruit dishes at the right temperature. Hot fruit dishes should be served at a temperature between 160 °F and 180 °F. Chilled fruit dishes should be served between 34 °F and 38 °F.

**ASK:** What cut fruit must be held and served at 41°F?

**FEEDBACK (Answers may include):** Cut melons must be held and served at 41 °F or below.

5. Fruit juice should be kept frozen or at 41°F. Juice should be completely thawed prior to serving. Individual pre-portioned containers assure freshness. Juices can be poured a day before service and stored, covered in the refrigerator. Nutrients will be lost to the air if juice is left uncovered.

**DO:** Discuss the Flavor Enhancement chart which can be found in the Participant’s Workbook.

**DO:** Allow participants to taste at least 3 herbs and 3 spices from the list.

**NOTE TO INSTRUCTOR:** Provide participants with tasting spoons.

**SAY:** Frequently offer fresh fruits using a variety of presentations, such as apple wedges, orange smiles, and banana halves. Follow these handling guidelines:

1. Use fresh fruits at their peak of ripeness. Most fruits have the highest vitamin content when they are at their peak of ripeness. They taste the best when they are ripe. Heat and light can destroy nutrient content. Fruits that are not ripe enough are generally tart; others are sweet and crunchy when they should be soft.
2. Wash fresh fruits in cool water before they are peeled or stemmed. Fruits can lose nutrients if they are bruised or cut and then put in water. Berries are a good example. Wash strawberries before they are hulled. The skin may not be clean so washing before processing removes the dirt and pesticides. Wash apples in cold water. Apples are covered with an edible wax that is not removed during washing. Fruits served with the skin left on should be washed carefully. This includes apples, bananas, oranges, and melons.

3. Cut fresh fruits in the largest pieces that are acceptable for serving, considering the age of the student. When fruit is cut in many smaller pieces more total surface area of the fruit is exposed and more vitamin C is lost. Avoid crushing fruits since this injures the fruit cells and causes more vitamin C loss.

4. Prepare fresh fruits so that they have an appealing appearance. Some fruits, such as peaches, bananas, apples, and avocados, turn brown when they are exposed to air. This is called surface oxidation. An acid, such as lemon juice, lime juice, pineapple juice, or orange juice retards oxidizing because these juices are good sources of the antioxidant vitamin C. A commercial product that contains vitamin C can also be used to prevent browning. Look for the chemical name of vitamin C (ascorbic acid) on the product label. Other acids in fruit juices may also be used.

**DO:** Show video clip from *Culinary Techniques: Preparing Fruits.*

**SAY:** Fruit salads and side dishes are appealing ways to use fresh, frozen, canned, and dried fruits. Follow these guidelines when preparing fruit salads and fruit side dishes:

1. Select the appropriate form of fruit to be used:
   - **Fresh** – wash fresh fruits in cool water before they are peeled or stemmed.
   - **Canned** – chill canned fruits when they are to be served cold.
   - **Frozen** – thaw frozen fruits in the refrigerator.
   - **Dried** – rehydrate dried fruits in water or juice if desired.

2. Prepare in serving size pieces and keep chilled and covered until service.

3. Prepare fruit dishes so that they have the appropriate texture. Most fruits have a texture that is unique for that fruit. When the fruit doesn’t have the right texture, it is unacceptable for use. Mushy apples or green bananas are not appealing and should not be served. Kiwi should be soft while a fresh apple should be crisp. Raisins should be chewy.

**DO:** Show video clip from *Culinary Techniques: Preparing Fruit Side Dishes.*

**SAY:** Baked fruits that can be served as a side dish or dessert are popular with many students. Follow these guidelines when preparing baked fruits.

1. Select a recipe for the baked fruit item.

2. Use the right form of the fruit for the recipe. The recipe will suggest the form of the fruit to use fresh, frozen, canned, or dried. Use the form suggested since the textures are different and result in very different baked products. Some recipes may need to be adjusted depending on the amount of added sugar in the form of fruit to be used. Frozen fruit can be partially thawed and drained slightly before using in baked dishes or baked desserts.
3. Prepare the baked fruit recipe. Most baked fruit recipes can be prepared ahead of service time and held in the warmer. Baked fruits can be covered and held. Fruit dishes that have a crust, such as pie or cobbler should be placed in a warmer uncovered or held at room temperature until time for service. Covering the warm crust will trap steam and cause the crust to become soft or soggy.

**DO:** Show video clip from *Culinary Techniques: Preparing Baked Fruits.*

**SAY:** Fruit sauces can be used as a side dish, as an accompaniment to meats such as baked chicken fingers, or as a topping for pancakes and waffles. Follow these guidelines when preparing fruit sauces.

1. Select a recipe for the fruit sauce.
2. Use the right form of the fruit for the recipe. The recipe will suggest the form of the fruit to use fresh, frozen, canned, or dried. Some recipes may need to be adjusted, depending on the amount of added sugar in the form of fruit to be used. Frozen fruit can be partially thawed and drained slightly before using in fruit sauces.
3. Prepare the fruit sauce recipe. Most fruit sauces can be prepared ahead of service time and held in the warmer.

**DO:** Show video clip from *Culinary Techniques: Preparing Fruit Sauces.*

**SAY:** Fruits are already popular with students. They can become more popular when a greater variety of choices is offered. School nutrition professionals can use their knowledge of basic principles of food production to make sure they use the right culinary techniques and follow each handling and preparation step correctly to produce a top quality product. Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. This lesson includes a Quality Score Card for Fresh Fruits and Fruit Menu Items and a Quality Score Card for Baked Fruits and Fruit Desserts. Follow the recipe for preparing a fruit to meet quality standards. 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:

1. Substitute another similar food on the serving line. Follow the school district procedure for menu substitutions.
2. Use the fruit another way, if possible, to avoid wasting the food.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.

**DO:** Discuss Quality Score Card for fruits which can be found in the Participant’s Workbook.
Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in Instructor’s Manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing fruits. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Fruits lesson for this activity.

1. School nutrition assistants may work as partners or individually, depending on the directions from the manager. Ideally, one partner should be someone who cooks and the other, someone who has other responsibilities. Both school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Fruits. 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: Preparing Fresh Fruit
   - Culinary Technique: Fruit Salads and Side Dishes
   - Culinary Technique: Baked Fruit
   - Culinary Technique: Fruit Sauces

4. The school nutrition manager and assistants who prepare the product will evaluate the product before it is placed on the serving line. Use the Quality Score Cards to evaluate the products.

More Optional Activities:
- If a commercial product is used to prevent fruits from browning, review the product and the correct way to mix it.
- Use the chart Keep Fresh Produce Flavorful to arrange the walk-in refrigerator to store fresh fruits and vegetables in the best locations to preserve quality.
- Demonstrate how to prepare fruits such as diced cantaloupe, or kiwi slices or wedges.
- Demonstrate how to use mechanical or manual food processors, such as a sectionizer or vegetable processor.
Preparing Vegetables

Time: 1 hour
## Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1: Improve the quality of vegetables served.</strong></td>
<td></td>
</tr>
<tr>
<td>Culinary terms</td>
<td>Review culinary terms with participants.</td>
</tr>
<tr>
<td><em>Mise en place</em></td>
<td>Review the necessary <em>mise en place</em> for preparing vegetables.</td>
</tr>
<tr>
<td>Food safety</td>
<td>Discuss safe food handling practices when preparing vegetables.</td>
</tr>
<tr>
<td><strong>Objective 2: Improve the variety of vegetables served.</strong></td>
<td></td>
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</tbody>
</table>
| Menu planning | Discuss menu planning recommendations.  
Discuss purchasing recommendations.  
Review *MyPlate* recommendations.  
Introduce the health benefits of vegetables. |
| **Objective 3: Improve the appeal of vegetables served.** |  |
| Cooking vegetables | Review and discuss the basic principles of cooking vegetables to retain nutrients.  
Demonstrate the use of a vegetable brush and peeler on a whole carrot.  
Demonstrate cutting uniform vegetable pieces. Discuss the importance of cooking uniformly cut vegetables.  
Discuss quality cooking standards and times.  
Discuss participants broccoli that has been overcooked compared with properly cooked broccoli.  
Discuss heating times for canned, cooked vegetables. |
| Seasoning vegetables | Discuss Flavor Enhancement Chart: Seasoning Sensational Vegetables.  
Allow participants to taste test seasoning blend. |
<p>| Steaming vegetables | Review and discuss the quality preparation steps of steaming vegetables. |
| Steaming vegetables | Show video clip from <em>Culinary Techniques: Steamed Vegetables.</em> |
| Stir-frying vegetables | Review and discuss the quality preparation steps of stir-fried vegetables. |
| Stir-frying vegetables | Show video clip from <em>Culinary Techniques: Stir-Frying Vegetables.</em> |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
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<tbody>
<tr>
<td>Roasting vegetables</td>
<td>Review and discuss the quality preparation steps of roasting vegetables.</td>
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<tr>
<td>Roasting vegetables</td>
<td>Show video clip from <em>Culinary Techniques: Roasting Vegetables.</em></td>
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<td></td>
<td>Demonstrate roasting vegetables.</td>
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<tr>
<td>Oven-baked fries</td>
<td>Review and discuss the quality preparation steps of oven-baked fries.</td>
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<tr>
<td>Oven-baked fries</td>
<td>Show video clip from <em>Culinary Techniques: Oven-Baked Fries.</em></td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Review and discuss Quality Score Card for Vegetables.</td>
</tr>
</tbody>
</table>
**Preparation Checklist**

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve equipment and gather lab supplies</td>
<td></td>
</tr>
<tr>
<td><strong>Materials needed:</strong></td>
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<tr>
<td>Cutting board</td>
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<tr>
<td>Chef’s knife</td>
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<tr>
<td>Carrots-1 bag</td>
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<tr>
<td>Vegetable brush</td>
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<tr>
<td>Vegetable peeler</td>
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<tr>
<td>1-15 oz. Can green beans</td>
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<tr>
<td>Colander</td>
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<tr>
<td>2 Small mixing bowls</td>
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<tr>
<td>Can opener</td>
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<tr>
<td>Measuring cups</td>
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<tr>
<td>Spice Mixture Chart</td>
<td></td>
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<tr>
<td>Toothpicks for tasting (increase amount for larger audience)</td>
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<tr>
<td>Canola oil or olive oil (increase amount for larger audience)</td>
<td></td>
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<tr>
<td>TV/DVD combo on cart</td>
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<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
<td></td>
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<tr>
<td>Nametags, optional</td>
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<tr>
<td>Make copies of Participant’s Workbook</td>
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</tbody>
</table>
Instructor’s Script

SAY: Welcome to the preparing vegetables section of the Culinary Techniques training. In this lesson, we will cover the following objectives:
1. Improve the quality of vegetables served.
2. Improve the variety of vegetables served.
3. Improve the appeal of vegetables served.

SAY: We would like you to understand in this lesson that:
• The way a vegetable is prepared affects its nutrient content.
• Overcooking vegetables destroys nutrients and results in poor texture, appearance, and taste.
• Vegetables should be cooked in batches for just-in-time service so they are at their peak of quality.
• There are many techniques for cooking vegetables. This lesson describes steaming, stir-frying, and roasting.
• Instead of using just salt and butter or margarine to season vegetables, try new seasonings that include herbs or spices.

DO: Refer to the important terms related to this lesson which can be found in the Participant’s Workbook.
• Blanch: To dip a food into boiling water for a very short time and then chill very quickly which briefly and partially cooks it.
• Culinary: Relating to the kitchen or cooking. An example of this 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 steaming, stir-frying, and roasting.
• Just-In-Time Preparation: 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 period of time. Other terms that mean the same thing are batch cooking and cooking to the line.
• Mise en Place (meez-un-plahss): A French term used by chefs and other culinary 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.
• Nutrients: The substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.
• Steaming: A moist-heat cooking technique in which heat is transferred from steam to the food being cooked by direct contact.
• Stir-Frying: A dry-heat cooking technique similar to sautéing. Foods are cooked over very high heat using little fat while stirring briskly and constantly.
• Roasting: Foods are cooked in the oven, using dry heat. When vegetables are roasted, they are generally sweeter and more tender.
• **Water-Soluble Vitamins:** Vitamins that can dissolve in water and thus can be lost during food preparation. They include the B vitamins and vitamin C.

• **Seasonal Produce:** Fruits and vegetables that are peak at a particular time of the year. Typically this produce is more flavorful and less expensive. Seasonality of produce will depend on region.

**SAY:** Gathering your *mise en place* is an important step in food production. Equipment that may be needed includes: produce sink, cutting boards, slicing equipment, and knives.

**SAY:** Before vegetable production can begin, vegetables must be properly washed for safety. Use the following guidelines when washing vegetables:

1. Follow state or local health department requirements.
2. Wash hands using the proper procedure.
3. Wash, rinse, sanitize, and air-dry all food-contact surfaces, equipment, and utensils that will be in contact with produce, such as cutting boards, knives, and sinks.
4. Wash all raw vegetables thoroughly before combining with other ingredients, including:
   a. Unpeeled fresh vegetables that are served whole or cut into pieces.
   b. Vegetables that are peeled and cut to use in cooking or served ready-to-eat.
5. Wash fresh produce vigorously under cold running water or by using chemicals that comply with the *FDA Food Code*. Packaged vegetables labeled as being previously washed and ready-to-eat are not required to be washed.
6. Scrub the surface of firm vegetables using a clean and sanitized brush designated for this purpose.
7. Remove any damaged or bruised areas.
8. Label, date, and refrigerate fresh-cut items.

**ASK:** What vegetables commonly used in school nutrition should be scrubbed prior to preparation?

**FEEDBACK (Answers may include):** Potatoes, sweet potatoes, whole carrots (not pre-cut carrots)

**SAY:** Menu planning practices should be focused on creating healthy school meals. Consider the following when planning menus:

• Increase the amounts and variety of vegetables offered because vegetables differ in nutrient content.
• Offer a dark green or deep orange vegetable three to four times a week.
• Plan a vitamin C-rich vegetable or fruit daily.
• Try using herbs, spices, and lemon for seasonings in place of part of the salt.

**SAY:** To prepare healthy school meals, you need to purchase healthy school foods. For example:

• Purchase fresh and frozen vegetables, where feasible, to substitute for canned vegetables, which are higher in sodium.
Preparing Vegetables

• Purchase oven-ready fries, instead of fries for deep-fat frying. Check and compare the fat content of the oven-ready fries to the deep-fat fries. Many times, the oven-ready fries have been processed with a coating of oil to make them brown, resulting in a high fat content. Try oven-ready sweet potato fries for added nutrients.
• Look to local farmers as an alternative to purchasing fresh produce. Check out www.farmtoschool.org for more information.

SAY: Children should eat 1 to 3 cups of vegetables each day. According to MyPlate:
• Eating a diet rich in fruits and vegetables as part of an overall healthy diet may reduce risk for stroke and perhaps other cardiovascular diseases.
• Eating a diet rich in fruits and vegetables as part of an overall healthy diet may reduce risk for type 2 diabetes.
• Eating a diet rich in fruits and vegetables as part of an overall healthy diet may protect against certain cancers, such as mouth, stomach, and colorectal cancers.
• Diets rich in foods containing fiber, such as fruits and vegetables, may reduce the risk of coronary heart disease.
• Eating fruits and vegetables rich in potassium as part of an overall healthy diet may reduce the risk of developing kidney stones and may help to decrease bone loss.
• Eating foods such as vegetables that are low in calories per cup instead of some other higher-calorie food may be useful in helping to lower calorie intake.

NOTE TO INSTRUCTOR: New meal pattern guidelines now require a student to take a serving of fruit or vegetable as part of a reimbursable meal. The 2010 Dietary Guidelines for Americans recommends fruit and vegetable intake based on calorie intake. For example, a 1,600 calorie per day diet should include 1 ½ cups of fruit and 2 cups of vegetables. Vegetables should be a variety of dark green, red and orange, beans and peas, starchy, and other vegetables.

SAY: Vegetables are packed with nutrients for children. Most vegetables are naturally low in fat and calories. None have cholesterol. (Sauces or seasonings may add fat, calories, or cholesterol.) Vegetables are important sources of many nutrients, including potassium, dietary fiber, folate (folic acid), vitamin A, vitamin E, and vitamin C. Diets rich in potassium may help to maintain healthy blood pressure. Vegetable sources of potassium include sweet potatoes, white potatoes, white beans, tomato products (paste, sauce, and juice), beet greens, soybeans, lima beans, winter squash, spinach, lentils, kidney beans, and split peas.

ASK: What healthy substance in vegetables acts as nature’s broom in your colon?

FEEDBACK (Answers may include): Dietary fiber from vegetables, as part of an overall healthy diet, helps reduce blood cholesterol levels and may lower risk of heart disease. Fiber is important for proper bowel function. It helps reduce constipation and diverticulitis. Fiber-containing foods such as vegetables help provide a feeling of fullness with fewer calories.
SAY: Vegetables are also a great source of vitamins A, E, and C. Vitamin A keeps eyes and skin healthy and helps to protect against infections. Vitamin E helps protect vitamin A and essential fatty acids from cell oxidation. Vitamin C helps heal cuts and wounds and keeps teeth and gums healthy. Vitamin C also aids in iron absorption.

SAY: The way a vegetable is prepared can affect the nutrient content. Some nutrients can be destroyed by heat and some dissolve in water. The culinary techniques described in this lesson are based on culinary principles designed to keep the nutrients in vegetables. Remember, keep the nutrients in vegetables by keeping the vegetables in big pieces, cooking in just a little water (if any), and cooking only a short time.

SAY: There are several culinary techniques used to prepare vegetables, including steaming, stir-frying, roasting, boiling, sautéing, and others. A recipe will describe the right culinary technique as part of the directions. By using the right culinary technique, a school nutrition professional can be sure to maintain the nutrients in the vegetable and meet the quality standards for the vegetable.

The culinary technique explains the step-by-step method to prepare the vegetable. However, school nutrition professionals need to know why the steps should be completed a certain way. Basic principles of vegetable preparation explain why.

SAY: Let’s discuss the basic principles of cooking vegetables to retain nutrients. Use these guidelines when cooking vegetables:

1. Cook vegetables in the smallest amount of liquid possible. Vegetables have some vitamins that dissolve in water and are lost when the cooking liquid is discarded. Water soluble vitamins are vitamins that dissolve in water. The common water soluble vitamins are Vitamin C and the B vitamins: riboflavin, thiamin, and niacin.

2. Cook vegetables the shortest amount of time for the desired tenderness. Vegetables have some vitamins that are destroyed by heat so long cooking means they provide less vitamins.

3. For vegetables that have a skin, scrub well and cook with the skin on whenever possible. If the vegetable must be peeled, peel as thinly as possible. Vegetables usually have a valuable layer of nutrients right under the skin. Peeling can remove many nutrients. (Examples: potatoes, carrots, parsnips, turnips.)

DO: Demonstrate the use of a vegetable brush and peeler on a whole carrot.

NOTE TO INSTRUCTOR: Carrots should be brushed prior to preparation. Using a vegetable peeler to remove the skin is optional. Beneficial nutrients located in or near the skin would be lost if peeled.

4. When vegetables are cut, use a sharp blade and cut in the largest pieces that are desirable for the recipe. Pieces should be uniform to allow for even cooking. Large pieces help preserve the nutrient content of the vegetable. A sharp blade in a piece of equipment or a knife will make a
Preparing Vegetables

clean cut instead of bruising the vegetable. Bruising causes a rapid loss of vitamin C from some green, leafy vegetables such as cabbage and other greens.

DO: Cut half the carrot into uniform slices (1/4 inch thick). Cut the remaining half of the carrot into non-uniform pieces. Explain the importance of uniform sizes as it relates to cooking time and product quality.

ASK: When the non-uniform pieces are cooked how will the quality be affected?

5. Follow the recipe or directions for cooking a vegetable. Recipes and general directions for cooking a vegetable are based on using the right culinary technique. Adding some ingredients actually destroys certain nutrients. For example, adding baking soda to green vegetables during cooking destroys some B vitamins as well as vitamin C.

6. Cook vegetables just-in-time for service on the line. Holding vegetables after cooking causes loss of nutritive value and quality. Plan the food production so that vegetables can be immediately placed on the serving line after cooking. Remember that cooking will continue when the vegetable is placed on the steam table. Vegetables are best when they are held for less than 20 minutes.

SAY: There are also basic principles of cooking vegetables to meet quality standards. Cook vegetables so they have an appealing appearance. Follow the recipe or directions for cooking a vegetable to maintain a bright color.

ASK: What causes broccoli to turn this dull green color? What should it look like when it is cooked properly?

FEEDBACK (Answers may include): Recipes/directions for cooking green vegetables have been developed to keep the green color. The green comes from chlorophyll that is affected by both heat and acid. When a green vegetable is cooked some acid is released in the steam. When steam cannot escape, it condenses to water that has the acid in it. Then, it falls back on the food turning it a dull olive-green color. This is why correct cooking and holding of green vegetables is so important to maintain the bright green color. Overcooking some green vegetables turns them a dull olive-green or even gives them a yellow-look. This can easily be seen in overcooked broccoli and cabbage.

SAY: For the same reason, an acid such as lemon juice should never be added to a green vegetable during cooking. The acid will cause the vegetable to turn an olive green color and keep it from softening during cooking. It is also a mistake to add baking soda to green vegetables. Although this makes the green color brighter, it destroys vitamins and can cause some vegetables, like broccoli, to feel slippery.

DO: Pour an approximately 15 ounce can of green beans into a clear container.

ASK: How long should these cooked green beans be heated?
FEEDBACK (Answers may include): Cooked green beans should be heated/steamed until an internal temperature of 135 °F or above is reached. It does not take very long to reach a safe serving temperature.

DO: Pour the liquid off of the green beans using a colander. Reserve the liquid.

SAY: If you want to have more flavorful beans by seasoning, cooking, and reducing the liquid, first separate the liquid from the product. That way you do not overcook the vegetable in the process. Pour the concentrated, heated liquid over the beans and heat beans to 135 °F or above. Canned green beans are a good standard to use to judge an overcooked green vegetable. The dull olive-green color means a green vegetable is overcooked. Correctly cooked green vegetables should be the color of fresh grass in the spring.

ASK: What color are your green vegetables after cooking?

NOTE TO INSTRUCTOR: Allow participants to share answers with the group.

SAY: The color of orange and yellow vegetables is more stable than green. During cooking the orange may become more yellow, but there is little change. Follow the recipe or directions to avoid overcooking these vegetables, because they begin to have a mushy appearance and texture.

SAY: Cook vegetables so they have appropriate texture. The texture that is appropriate for a vegetable varies with the vegetable and with the recipe. Follow the recipe or directions for exact cooking times to get the right texture. Cooking times will vary depending on whether the vegetable is fresh, frozen, or canned. Canned vegetables only need to be heated. The canning process completely cooks them. Follow directions or a recipe for the correct cooking times for fresh or frozen vegetables.

SAY: Vegetables are softened during the cooking process. Undercooking may make them too crisp while overcooking makes some vegetables mushy. Adding baking soda to the water in vegetables makes them mushy or slippery while adding an acid, like lemon juice, prevents the vegetable from softening. Never add an ingredient unless it is called for in the recipe.

SAY: Cook vegetables for good flavor typical of the vegetable. All vegetables have some change of flavor during cooking. For some vegetables the change may be slight while others have a big change in flavor. Follow the recipe or directions for exact cooking times to have a good flavor. The flavor of a vegetable is affected by the way it is cooked and by the seasonings added to it. Overcooking is the biggest problem when it comes to flavor. Vegetables in the cabbage family (cabbage, broccoli, cauliflower) develop a very strong, sulfur-flavor when they are overcooked. Some vegetables may become bitter with overcooking. Other vegetables may become flat or dull. Have you ever tasted cabbage that had a sulfur taste? That taste comes from overcooking. Cooking in too much water also affects the flavor of vegetables because some parts of the vegetables that affect flavor are dissolved and lost in the water.
Preparing Vegetables

SAY: Use appropriate seasonings for vegetables for a good flavor. Properly cooked vegetables do not need a lot of salt, butter, or margarine for best flavor. In fact, adding too much salt and adding fat can mask the natural flavor of vegetables. Follow the recipe or directions for best flavor.

DO: Discuss Flavor Enhancement Chart: Seasoning Sensational Vegetables found in the Participant’s Workbook.

SAY: For safety and quality, serve vegetables at the right temperature. When vegetables are placed on the serving line, they should be between 160 °F and 180 °F. By cooking vegetables just in time for service, they do not have to be held long and will have better quality as well as maintain their temperature. The serving line should be set to hold the hot foods above an internal temperature of 135 °F. For many students, meals at school provide most of the vegetables in their diet. Just as important, meals at school are an ideal way for students to learn to eat new foods, including unfamiliar vegetables. It is important that vegetables be prepared so they look good, taste good, and provide their important nutrients.

SAY: Now, let’s discuss steaming vegetables in a steamer. Follow these steps when steaming vegetables in a steamer:

1. Place approximately 50, 1/4-cup servings of the fresh or frozen vegetable in a 12 x 20 x 2-inch counter pan. Do not place a larger amount of vegetables in the pan in order to allow room for the steam to circulate around the vegetables. Do not add any liquid.

NOTE TO INSTRUCTOR: A perforated pan is sometimes referred to as a counter pan.

2. Steam uncovered at 5 pounds pressure, for a compartment steamer. Follow the recipe or refer to the chart on page 13. Follow manufacturer’s directions for steamers operating at other pressures or when using convection steamers or combination ovens.

3. Drain the excess liquid from the cooked vegetable.

4. Season with herbs and spices. Do not add butter or margarine. Limit salt to 1/2 teaspoon for 50 cup servings.

5. Serve the hot vegetable at once.

DO: Discuss Vegetable Steamer Chart found in the Participant’s Workbook.

NOTE TO INSTRUCTOR: Be sure to point out cook time savings when using a steamer.
SAY: Next, we will discuss steaming vegetables in an oven. Follow these steps when steaming vegetables in an oven.

1. Place approximately 50, 1/4 cup servings of the fresh or frozen vegetable in a perforated 12 x 20 x 2-inch counter pan. Then place the perforated pan in a 4-inch deep counter pan that contains 2 cups of water. To allow room for the steam to circulate around the vegetables, do not place a larger amount of vegetables in the pan.

2. Cover both pans tightly with foil. This arrangement of pans creates a steamer effect in a perforated pan.

3. Place the covered pans in an oven at 350 °F for approximately 20 minutes. Cook the vegetable until it is fork tender. Times will vary with the vegetables.

4. Drain the excess liquid from the cooked vegetable.

5. Season with herbs and spices. Do not add butter or margarine. Limit salt to 1/2 teaspoon for 50 servings.

6. Serve the hot vegetable at once.

DO: Show video clip from Culinary Techniques: Steamed Vegetables.

NOTE TO INSTRUCTOR: Video shows broccoli being dipped in water to wash. Explain to participants that fruits and vegetables should be washed under running water.

SAY: Next, let’s discuss stir-frying vegetables. Follow these steps when stir-frying.

1. Decide on the vegetables that will be used for stir-frying and the amount of each to be used. Make a list of the vegetables to be added in sequence beginning with those that take the longest time to cook. Some vegetables may need to be blanched or steamed a short time before stir-frying. Follow the recipe. When using a stir-fry vegetable mixture, follow the directions on the package.

2. When using fresh vegetables, prepare them for stir-frying. All the vegetables for stir-frying should be cut in bite-size pieces. Refer to the lesson on preparing salads to review the culinary technique blanching.

3. Heat the pan, add the cooking medium, and heat it. Most stir-fry recipes require a small amount of oil as the cooking medium. Some recipes may suggest using broth, juices, or sauces. Follow the recipe.

4. Add the vegetables that take the longest time to cook. Then add those that take a shorter time. Vegetables should be in a single layer so they will not steam and cook in their own juices. Stir the vegetables as they cook making sure all vegetables stay in contact with the heated surface of the pan.

5. Follow the recipe directions to add the flavoring ingredients. Be careful not to overcook the vegetables. Some recipes suggest adding the flavoring, then covering and steaming for 2 minutes. If this step is done, remain at the pan and time the steaming, since overcooking will cause the vegetables to lose quality.
6. Serve the stir-fry vegetables at once. Prepare stir-fry vegetables in batches for just-in-time service because vegetables will continue to cook on the serving line.

**DO:** Show video clip from *Culinary Techniques: Stir-Frying Vegetables.*

**SAY:** Now, let’s discuss roasting vegetables. Be sure to preheat the oven to 325 °F–350 °F. Cut vegetables into uniform shape and size.

**ASK:** Why is it important to cut vegetables into the same shape and size?

**FEEDBACK (Answers may be):** This provides a consistent cooking time for all vegetables.

**DO:** Demonstrate cutting carrots into 1/2 inch sticks for roasting.

**SAY:** Next, toss vegetables with olive oil or an olive oil blend such as canola/olive oil. Season the vegetables with pepper, garlic, spices, or herbs. Use no more than 1 teaspoon per 50 portions. Place vegetables in a single layer on a sheet pan. Do not crowd the vegetables as this will cause them to steam. Bake until vegetables are tender.

**NOTE TO INSTRUCTOR:** Some chefs prefer not to use parchment paper when roasting. *It is thought that it causes the vegetables to be less crispy, because they are not touching the hot metal.*

**DO:** Have participants taste Roasted Carrots.

**DO:** Show video clip from *Culinary Techniques: Roasting Vegetables.*

**SAY:** For best results when making oven-baked French fried potatoes, use the following guidelines.

- Cook from frozen state using recommended time and temperature.
- Always cook to a light golden color. Do not overcook.
- When cooking smaller amounts, reduce cooking time.

**SAY:** To bake French fries, preheat the oven to 425 °F–450 °F. Remove from the freezer only the amount of French fries to be used within 1 hour. Try to remove a full box since the whole box will thaw more slowly. Place a single layer of French fries on a sheet pan. For best results use 2 1/2 pounds per full sheet pan. Bake according to package instructions. Turn once for uniform cooking. Pour the French fries into a holding bin or pan lined with absorbent paper. Hold under a heat lamp at 120 °F–140 °F. Evenly spread the fries in the bin. Remember to prepare fries just-in-time for service so they will not have to be held long.
SAY: When seasoning fries, limit the salt to 1/2 teaspoon for 50 servings of fries. Try other seasonings instead of salt. For example: for 50 servings of fries, combine 2 tablespoons Spanish paprika and 2 teaspoons onion powder, or 2 teaspoons dried leaf thyme, or basil, or oregano. Follow the package directions for a quality product. Remember to batch cook for just-in-time service. There are many excellent potato products that can be cooked in the oven and meet the following criteria for fat and salt:

- 0 grams of trans-fats,
- Less than 35% calories from total fat,
- Less than 10% calories from saturated fat, and
- Less than 300 milligrams of sodium.

DO: Show video clip from Culinary Techniques: Oven-Baked Fries.

SAY: For many students, meals at school provide most of the vegetables in their diet. Meals at school are an ideal way for students to learn to eat new foods, including unfamiliar vegetables. It is important that vegetables be prepared so they look good, taste good, and provide their important nutrients. Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. Follow the recipe or package directions for cooking a vegetable to meet quality standards. 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:

1. Substitute another similar food on the serving line. Follow the school district procedure for menu substitutions.
2. Use the vegetable another way, if possible, to avoid wasting the food.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.

DO: Discuss the Quality Score Card for Vegetables found in the Participant’s Workbook.
Optional Activity: Culinary Application and Practice Activity

**NOTE TO INSTRUCTOR:** Items needed for this activity are not included in instructor’s manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing vegetables. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the *Culinary Techniques Preparing Vegetables* lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Vegetables. 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: Steaming Vegetables in a Steamer
   - Culinary Technique: Steaming Vegetables in an Oven
   - Culinary Technique: Stir-Frying Vegetables
   - Culinary Technique: Roasting Vegetables

Try these vegetables for roasting:
- Asparagus
- Beets
- Brussels sprouts
- Carrots
- Corn
- Eggplant
- Mushrooms
- Onions
- Parsnips
- Peppers
- Potatoes
- Rutabagas
- Summer squash
- Sweet potatoes
- Tomatoes
- Turnips
- Zucchini
  - Culinary Technique: Oven-Baked French Fried Potatoes
4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Cards.

Optional Additional Activities:

- Look at a serving of canned green beans to demonstrate the green color of an overcooked vegetable.
- View a serving of correctly cooked broccoli to demonstrate the bright green color of a correctly cooked green vegetable. The color should be like spring grass.
- Use the Seasoning Sensational Vegetables chart to describe various ways to use herbs and spices. Consider some herbs and spices you would like to try, using the suggestions on the Seasoning Sensational Vegetables chart.
Preparing Salads

Time: 1 hour
# Lesson-at-a-Glance

## 60 minutes

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
</table>
| **Objective 1:** Improve the quality of salads served to students. | **Culinary terms**<br>Review culinary terms with participants.  
**Mise en place**<br>Review the necessary *mise en place* for salad production. |
| **Menu planning** | Discuss menu planning recommendations.  
Review *MyPlate* recommendations.  
Introduce the healthfulness of salads. |
| **Preparing salads** | Discuss the basic principles or rules of salad preparation.  
Demonstrate using a vegetable brush to scrub a cantaloupe melon.  
Demonstrate removing skin from a cucumber using a vegetable peeler and a paring knife. |
| **Objective 2:** Improve the variety of salads and salad greens served to students. | **Variety of salad greens**<br>Introduce types of salad greens.  
**Handling salad greens**<br>Discuss handling salad greens to preserve nutrients.  
Review and discuss safe handling of salad greens.  
Discuss pre-cut produce options. |
| **Objective 3:** Improve the appeal of salads served to students. | **Preparing salads**<br>Review the quality food production steps when preparing green salads.  
Demonstrate the proper method for dicing heads of romaine.  
Demo: Sample variety of salad greens.  
**Preparing salads**<br>Show video clip from *Culinary Techniques: Preparing Green Salads*.  
**Mixed (fruit) salads**<br>Review the quality food production steps when preparing mixed salads.  
Show participants the apple half that was dipped in lemon juice and the apple half that was not dipped in lemon juice.  
**Mixed (fruit) salads**<br>Show video clip from *Culinary Techniques: Preparing Fruit Salads*.  
**Vegetable salads**<br>Review the quality food production steps when preparing vegetable salads.  
**Vegetable salads**<br>Show Vegetable Salads video clip from *Culinary Techniques: Preparing Vegetable Salads*. |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
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</thead>
<tbody>
<tr>
<td>Potato salads</td>
<td>Review the quality food production steps when preparing potato salads.</td>
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<tr>
<td>Potato salads</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Potato Salads</em>.</td>
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<tr>
<td>Pasta and grain salads</td>
<td>Review the quality food production steps when preparing pasta and grain salads.</td>
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<tr>
<td>Pasta and grain salads</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Pasta and Grain Salads</em>.</td>
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<tr>
<td>Legume salads</td>
<td>Review the quality food production steps when preparing legume salads.</td>
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<tr>
<td>Legume salads</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Legume Salads</em>.</td>
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<tr>
<td>Protein salads</td>
<td>Review the quality food production steps when preparing protein salads.</td>
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<tr>
<td>Protein salads</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Protein Salads</em>.</td>
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<tr>
<td>Composed salads</td>
<td>Review the quality food production steps when preparing composed salads.</td>
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<tr>
<td>Composed salads</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Composed Salads</em>.</td>
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<tr>
<td>Blanching vegetables</td>
<td>Discuss the steps when blanching vegetables.</td>
</tr>
<tr>
<td>Blanching vegetables</td>
<td>Show video clip from <em>Culinary Techniques: Blanching Vegetables</em>.</td>
</tr>
<tr>
<td>Using a chef’s knife</td>
<td>Discuss and demonstrate how to properly use a chef’s knife.</td>
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<tr>
<td>Using a chef’s knife</td>
<td>Show video clip from <em>Culinary Techniques: Using the Chef’s Knife</em>.</td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Review Quality Score Card for Salads.</td>
</tr>
</tbody>
</table>
Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reserve equipment and gather lab supplies</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Materials needed:</strong></td>
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<tr>
<td>Vegetable brush</td>
<td></td>
</tr>
<tr>
<td>Cantaloupe melon</td>
<td></td>
</tr>
<tr>
<td>Vegetable peeler</td>
<td></td>
</tr>
<tr>
<td>Cucumber × 2</td>
<td></td>
</tr>
<tr>
<td>Romaine (head)</td>
<td></td>
</tr>
<tr>
<td>Variety of Salad Greens</td>
<td></td>
</tr>
<tr>
<td>Cutting board</td>
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</tr>
<tr>
<td>Chef’s knife</td>
<td></td>
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<tr>
<td>Paring knife</td>
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</tr>
<tr>
<td>Apple</td>
<td></td>
</tr>
<tr>
<td>Lemon juice - 2 oz.</td>
<td></td>
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<tr>
<td>TV/DVD combo on cart</td>
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</tr>
<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
<td></td>
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<tr>
<td>Nametags, optional</td>
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<tr>
<td><strong>Make copies of Participant’s Workbook</strong></td>
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</tbody>
</table>
Instructor’s Script

SAY: Welcome to the preparing salads section of the Culinary Techniques training. In this lesson, we will cover the following objectives:

1. Improve the quality of salads served to students.
2. Improve the variety of salads and salad greens served to students.
3. Improve the appeal of salads served to students.

SAY: We would like you to understand the main ideas in this lesson, including:

- Nutrients in the fresh ingredients in a salad must be maintained during preparation.
- Good quality salads can be prepared by following basic food preparation principles.
- Schools serve three basic types of salads: tossed green salad, mixed salad, and main course salads. Each one has a separate culinary technique that describes basic preparation steps.
- Blanching can be used to maintain color of fresh vegetables.
- The French knife can be used to prepare small amounts of fresh produce.

DO: Refer to the important terms related to this lesson in the Participant’s Workbook.

- Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
- Culinary Technique: A step-by-step food preparation method. The culinary techniques described in this lesson include preparing salads.
- Danger Zone: According to the FDA Food Code, the temperatures between 41 °F and 135 °F are ideal for bacteria to grow. All potentially hazardous foods should be kept below 41 °F or above 135 °F.
- Ethylene Gas: A naturally occurring gas produced when some fruits and vegetables begin to ripen.
- Julienne: Cutting vegetables or other food products into matchstick shapes.
- Just-In-Time Preparation: Preparing a menu item in small enough amounts 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 period of time. Other terms that mean the same thing are batch cooking and cooking to the line.
- Mise en Place (meez-un-plahss): A French term used by chefs and other culinary professionals to describe all the different steps 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.
- Nutrients: The substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.
- Seasonal Produce: Fruits and vegetables that are at their peak of production at a particular time of the year. Typically this produce is more flavorful and less expensive. Seasonality of produce will depend on region.
**SAY:** Gathering your *mise en place* is an important step in food production. Equipment that may be needed includes:

• Preparation sink – A separate two-compartment sink is recommended to clean and prepare fresh produce
• Food waste disposer or garbage can
• Reach-in refrigerator or walk-in cooler
• Worktables, preferably stainless steel
• Chopper and cutter
• Knives
• Peeler, electric or hand
• Cutting boards, color-coded for specific use
• Thermometers
• Disposable plastic gloves
• Vegetable brush

Be sure to wash, rinse, sanitize, and air-dry all food-contact surfaces, equipment, and utensils that will be in contact with produce, such as cutting boards, knives, sinks, and your hands.

**SAY:** Menu planning practices should be focused on creating healthy school meals by:

• Increasing the amounts and variety of fresh vegetables offered because vegetables differ in nutrient content.
• Offering a dark green or deep orange vegetable three to four times a week.
• Planning a vitamin C-rich vegetable or fruit daily.
• Using a variety of salad greens in your salads for variety in taste and nutrition.

**NOTE TO INSTRUCTOR:** New meal pattern guidelines have incorporated some of these healthy suggestions.

**SAY:** Look to local farmers as an alternative to purchasing fresh produce. Check out www.farmtoschool.org for more information.

**SAY:** Children should eat 1 to 3 cups of vegetables each day. Salads are more popular today than ever before because students, like adults, are conscious about what they eat. Salads represent healthy choices. Salads can be low in calories and high in important nutrients, particularly vitamins and minerals from fresh fruits and vegetables. Most importantly, salads are a tasty treat.

**SAY:** To please school nutrition customers, salads must have eye appeal, have a pleasing flavor, and be nutritious. Fresh fruits and vegetables are especially important in a healthy diet. Salads are the perfect way to offer fresh fruits and vegetables to students and to introduce them to new foods. According to the *Dietary Guidelines for Americans*, children should eat 1–3 cups of vegetables each day and 1–2 cups of fruits each day. To get that much in a day, students need to choose two or more servings of fruits and vegetables for lunch.
NOTE TO INSTRUCTOR: New meal pattern guidelines now require a student to take a serving of fruit or vegetable as part of a reimbursable meal. The 2010 Dietary Guidelines for Americans recommends fruit and vegetable intake based on calorie intake. For example, a 1,600 calorie per day diet should consist of 1 ½ cups of fruit and 2 cups of vegetables. Vegetables should be a variety of dark green, red and orange, beans and peas, starchy, and other vegetables.

SAY: The challenge for the school nutrition program is to offer appealing salads that sell themselves and provide important nutritional benefits to students. Fresh produce provides important vitamins and minerals. The two vitamins most often associated with fresh fruits and vegetables are vitamin A and vitamin C. These two vitamins help protect the body from a variety of diseases. The body can make vitamin A from beta-carotene found in carrots, peaches, apricots, spinach, squash, broccoli, sweet potatoes, and kale. Vitamin C is the leading vitamin in citrus fruits, melons, strawberries, green peppers, tomatoes, broccoli, Brussels sprouts, and other fruits and vegetables. It is easily destroyed during food production since damage occurs from both heat and light.

SAY: This lesson describes how to prepare salads so the fresh ingredients maintain their nutrients and their quality. School nutrition experts have developed culinary techniques or step-by-step procedures that result in quality products. These culinary techniques have been developed so salads will provide a nutritious menu choice and meet the quality standards for the type of salad.

SAY: To understand why each step of a culinary technique is important, it is useful to know some basic principles or rules of salad preparation. These principles can be organized by those that help protect the nutrients in salad ingredients and those that promote quality. Many of the principles do both things. Appealing, healthful salads result when the basic principles of salad preparation are followed.

SAY: Follow the basic principles of preparation for nutrition salads. For fruits or vegetables that have a skin, scrub well and use with the peeling left on whenever possible. If the fruit or vegetable must be peeled, peel as thinly as possible. Peeling some vegetables can remove many nutrients that are right under the skin. The skin on fruits gives added color and texture to salads. All fruits and vegetables should be washed well before using. This removes dirt, pesticides, and microorganisms. Failing to wash fresh produce can lead to foodborne illness in the cafeteria.

DO: Demonstrate using a vegetable brush to scrub a cantaloupe melon.

DEMO: Demonstrate how to peel and cut a melon.

DO: Using a paring knife, remove several sides of a cucumber. Next, use a vegetable peeler to remove several sides of a cucumber. Discuss how much waste resulted when using the wrong tool.

SAY: When fruits and vegetables are cut, use a knife with a sharp blade and cut in the largest pieces that are desirable for the salad. A knife with a sharp blade will make a clean cut instead of bruising the fruit or vegetable. Bruising causes a rapid loss of vitamin C in some green leafy vegetables such as cabbage.
and other greens, as well as from fruits. Some fruits turn dark when they are exposed to air. Larger pieces expose less total surface area to air than many smaller pieces. Only cut the amount of the food that will be used for service that day. Prepare fresh salads as close to serving time as possible. Delicate salad greens, such as Butterhead lettuce, should be torn rather than cut when practical. However, when a knife is used, the blade should be sharp. Salad greens should be no larger than a quarter of a slice of bread.

**SAY:** Prepare salads for just-in-time service on the line. Fresh fruits and vegetables can lose some vitamins and minerals as well as quality when they are held a long time and exposed to air and light. Moisture loss will lead to a limp salad.

**SAY:** Keep salads a nutritious menu choice by using low-fat or fat-free salad dressings. Salads are light menu choices since fruits and vegetables are naturally low in calories and high in nutrients. Salad dressings should be low-fat or fat-free to help make school menus consistent with the recommendations of the *Dietary Guidelines for Americans*. Salad dressings for tossed green salads should be added by the student to maintain quality and freshness.

**ASK:** What are some popular fat-free salad dressings offered on your menus?

**NOTE TO INSTRUCTOR:** *(Answers may include)* Allow participants to share Feedback with the group.

**SAY:** Not only is it important to prepare salads to maintain the nutrients in the fruits and vegetables, but it is also important to offer salads that meet the quality standards described on the Quality Score Card. Different kinds of salads have different quality standards. Salads should also be prepared to meet student likes.

**SAY:** There are many different kinds of salads; this lesson looks at the following:

- Green Salads
- Mixed Salads
- Fruit Salads
- Vegetable Salads
- Potato Salads
- Pasta and Grain Salads
- Legume Salads
- Protein Salads
- Composed (Arranged) Salads

**SAY:** All salads should be prepared using a recipe. Use the *USDA Food Buying Guide* when determining the amounts needed for new recipes. The manager uses a recipe to determine what ingredients will be included in a salad and then gives that information to the assistant. Salads should be planned to contrast color, flavor, texture, and shape. Salads are more appealing and nutritious when there are a variety of ingredients.
Preparation of Salads

**SAY:** Include ingredients of different colors for eye appeal, different nutrients and other healthful components. For example, in a tossed green salad, shredded carrot and red cabbage can be added to leaf lettuce. Create colorful tossed green salads by mixing ingredients. Balance strong and mild flavors. For example, a pre-plated salad could present mild Butterhead lettuce with grapefruit sections and red onion rings. Balance soft with crisp ingredients, juicy with crunchy, fibrous with smooth. For example, a tossed green salad could include Romaine lettuce, sunflower seeds, raisins, and orange sections. Cut ingredients in different shapes, such as cubes, julienne (matchstick shape), slices, shredded bits, and wedges.

**SAY:** Use the correct way to clean and wash all fresh ingredients carefully to remove sand, grit, insects, pesticides, and microorganisms. Remember to drain washed ingredients carefully and thoroughly. Fresh ingredients in salads lose their appeal if they taste gritty. They can cause foodborne illness if they are not cleaned thoroughly. All fresh salad ingredients should be used promptly after cleaning and washing to assure quality.

**SAY:** Here’s the correct way to clean fresh fruits and vegetables:
- For iceberg lettuce, remove the core before it is cleaned. To remove the core, firmly strike the core of the head of lettuce on a hard surface, then remove the core whole.
- Wash head lettuce by running water in the core area that has been removed. Do not soak heads of lettuce since the leaves absorb water. Place in a colander to drain with the core end down. Remove the leaves and stack six to seven leaves to a pile.
- For salad greens with loose leaves, such as spinach, Romaine lettuce, Boston lettuce, or leaf lettuce, separate the leaves; wash in cool water. Do not soak.
- Drain all salad ingredients thoroughly so no water collects in the bottom of the serving container. Use a commercial salad spinner to thoroughly dry salad greens.
- All washed salad greens should be placed in plastic bags or plastic containers with a fitted cover.
- Some fruits turn brown when the cut surface is exposed to air. These fruits include apples, avocados, bananas, pears, and peaches. They should be cut with a sharp, stainless steel knife and then tossed in pineapple, orange, or diluted lemon juice. A commercial product can be used to prevent browning.
- Some fresh vegetables such as carrots, jicama, potatoes, and turnips need to be washed thoroughly, and then peeled. Do not soak because important nutrients can be lost in the soaking water.

**NOTE TO INSTRUCTOR:** If fruits continue to turn brown and oxidize after tossing in an acid such as pineapple, orange, or diluted lemon juice, check the concentration of acid to water to be sure it is acidic enough to prevent browning.

**SAY:** Value-added produce such as cleaned and cored lettuce or pre-cut produce may be another option for preparing fresh salad ingredients. Cleaned and cored iceberg lettuce is ready to rinse and drain. Then proceed to the next step in salad preparation. Pre-cut salad greens and other pre-cut fresh produce items are ready to use when they are received. The labor and packaging necessary to prepare fresh cut produce adds to its value and cost.
SAY: Pre-cut produce should be purchased in quantities that can be used within five school days in order to remain at its peak of quality. Because the produce is ready for use, the temperature of the packages is critical to quality. Take the temperature inside the produce bags when they are received. Be sure the temperature is about 41 °F. If the temperature of the product is too low or too high, follow the school district procedure. Upon receipt of pre-cut produce, immediately store the bags in the refrigerator. Do not remove the bags from the refrigerator until it is time to prepare the salad. Pre-cut produce is packaged in air-controlled bags to assure quality and freshness. Once the seal on the bag has been broken, the products should be used as quickly as possible.

NOTE TO INSTRUCTOR: For produce that is vacuum packed or sealed, take the temperature by placing the thermometer between two bags.

SAY: Chill all salad ingredients in the refrigerator until time for preparation. The temperature of ingredients affects appearance, texture, and flavor of the salad. Fresh greens should be refrigerated for several hours to develop crispness. Most fresh fruits and vegetables maintain their quality best between 34 °F and 40 °F. Fresh-cut produce loses quality even faster than whole produce when it is above 40 °F. Ingredients like canned tuna, hard cooked eggs, and pasta will provide a more appealing salad when they are chilled. Before leaving each day, check the next day’s menu to make sure all salad ingredients for the next day have been prepared so they can be used chilled on the day of service.

SAY: Cut salad ingredients as described in the recipe. Pieces should be large enough to be identified. Many fresh fruits and vegetables provide vitamins that can be destroyed by light or exposure to air. Some oxidize and turn brown and have an unattractive appearance when exposed to air. It is better to have fewer pieces of salad ingredients that are larger than many very small pieces. Most students like to be able to identify the ingredients in their foods. Many salad ingredients are prepared in large quantities using a vertical cutter mixer (VCM), a food processor, a slicer, or some other similar piece of equipment. However, some ingredients are needed in only small amounts and can be easily cut with a knife. A French knife is the chef’s choice for cutting fresh ingredients.

NOTE TO INSTRUCTOR: A French knife is another term used for chef’s knife.

SAY: A variety of salad dressings should be offered on the side so students can add them after they have selected a salad. If this is not possible, add salad dressing just in time for service. Salad dressings add an important taste to salads. However, when a salad dressing is added to mixed greens or other fresh vegetables or fruits too long before serving, the liquid in the dressing makes the fruit or vegetables lose their crispness. The salad will look tired and wilted. Low-fat or fat-free salad dressings should be offered as individual servings on the side, or added at the last minute. Follow the recipe for adding dressings to salads like tuna or pasta.

SAY: For safety and quality, serve salads at the ideal temperature. Salads should be served at a temperature of 34 °F–38 °F for the best quality. Fresh ingredients maintain their appearance and texture better at this temperature.
Preparing Salads

SAY: Let’s take a closer look at preparing green salads. Follow these steps for quality food preparation:

1. Store fresh produce at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the Participant’s Workbook.

2. Use a variety of ingredients for contrast in color, flavor, texture, and shape. Begin with a leafy green vegetable and add a variety of ingredients.

3. Wash the greens thoroughly in plenty of cool water to remove all traces of dirt or sand. Change the water as often as necessary until absolutely no traces of dirt, grit, or sand are visible. Separate the lettuce or other greens into leaves. Trim any coarse ribs or stem ends away.

4. Dry the greens completely. Salad dressings cling best to well-dried greens. Thoroughly dried greens maintain quality longer. Be sure tossed green salads are drained and dry. Use a commercial salad spinner for best results.

5. Cut or tear the lettuce into bite-size pieces. A sharp, high-carbon, stainless-steel knife is necessary to prevent discoloration. A sharp knife will ensure that the leaves are sliced rather than crushed and bruised.

6. Keep greens chilled until ready to serve. Store greens in shallow tubs with a tight cover until service.

7. Offer a variety of low-fat or fat-free salad dressings for students to add to the salad.

DEMO: Demonstrate the proper method for dicing heads of romaine.

DO: Let participants sample a variety of salad greens.

NOTE TO INSTRUCTOR: Remove the stem end prior to washing to remove any pests or soil. Cut stems lengthwise prior to cutting crosswise to create one inch dices of romaine. (Be sure to remove two outer leaves for use in composed salad presentation.)

DO: Show video clip from *Culinary Techniques Preparing: Green Salads*.

SAY: Next, let’s take a closer look at preparing mixed salads, such as fruit salads. Follow these steps for quality food preparation:

1. Store fresh, frozen, or canned fruits at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the Participant’s Workbook.

2. Review the recipe the day before preparation so ingredients can be selected and chilled. Chill canned ingredients overnight.

3. Follow the recipe for preparation of ingredients that need to be chopped, diced, minced, or sliced. Leave ingredients in large enough pieces to be identified. All ingredients in a salad should be identifiable. For fruits that turn brown (apples, pears, and bananas), treat with fruit juice (pineapple, orange, or diluted lemon juice) or a commercial product to prevent browning. Fresh herbs such as mint, basil, or lemon thyme can be added for flavor and color.
4. Gently mix all fruits, herbs, seasonings, and dressing. Fruit salads with highly perishable fruits, such as bananas, can be produced in batches.

5. Keep fruit salads chilled until service.

**NOTE TO INSTRUCTOR:** Prior to this lesson, cut an apple in half. Dip one half in lemon juice. Leave the other half to brown or oxidize.

**DO:** Show participants the apple half that was dipped in lemon juice and the apple half that was not dipped in lemon juice. Discuss the difference in presentation.

**DO:** Show video clip from *Culinary Techniques: Preparing Fruit Salads*.

**SAY:** Next, we will discuss preparing mixed salads, such as vegetable salads. Follow these steps for quality food preparation:

1. Store fresh produce at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the Participant’s Workbook.

2. Review the recipe the day before preparation so ingredients can be selected and chilled. Chill canned ingredients, including salad dressings, overnight.

3. Follow the recipe for preparation of ingredients that need to be chopped, diced, minced, or sliced. Leave ingredients in large enough pieces to be identified. All ingredients in a salad should be identifiable. For vegetables that turn brown, such as avocados, treat with fruit juice (pineapple, orange, or diluted lemon juice) or a commercial product to prevent browning. Blanch vegetables, if necessary, to set the color or to soften the vegetable slightly.

4. Gently mix all vegetables, herbs, seasonings, and dressing. Vegetable salads with highly perishable vegetables, such as tomatoes, can be produced in batches.

5. Keep vegetable salads chilled until service.

**DO:** Show video clip from *Culinary Techniques: Preparing Vegetable Salads*.

**SAY:** Now we will discuss the steps for preparing mixed salads, such as potato salads. Follow these steps for quality food preparation.

1. Store fresh produce at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the Participant’s Workbook.

2. Review the recipe the day before preparation so ingredients can be selected and chilled. Potatoes must be cooked completely, but not overcooked. Cook and chill potatoes the day before salad preparation. Chill ingredients, including salad dressings, overnight.

3. Follow the recipe for preparation of ingredients that need to be chopped, diced, minced, or sliced. Leave ingredients in large enough pieces to be identified. All ingredients in a salad should be identifiable. Blanch vegetables, if necessary, to set the color or to soften the vegetable.

4. Gently mix potatoes, other vegetables, herbs, seasonings, and dressing. Vegetable salads with highly perishable vegetables, such as tomatoes, can be produced in batches.

5. Keep potato salads chilled until service.
DO: Show video clip from *Culinary Techniques: Preparing Potato Salads*.

SAY: Next, let’s take a closer look at preparing mixed salads using pasta and grains. Follow these steps for quality food preparation:

1. Store fresh produce at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the lesson on Preparing Fruits to learn how to store different kinds of fruits and vegetables.

2. Review the recipe the day before preparation so ingredients can be selected and chilled. Pasta and grains must be cooked completely, but not overcooked. Cook and chill pasta/grains the day before salad preparation. Chill ingredients, including salad dressings, overnight.

3. Follow the recipe for preparation of ingredients that need to be chopped, diced, minced, or sliced. Leave ingredients in large enough pieces to be identified. All ingredients in a salad should be identifiable. Blanch vegetables, if necessary, to set the color or to soften the vegetable.

4. Gently mix pasta or grains, other vegetables, herbs, seasonings, and dressing.

5. Keep pasta and grain salads chilled until service.

DO: Show video clip from *Culinary Techniques: Preparing Pasta and Grain Salads*.

SAY: Next, let’s take a closer look at preparing mixed salads using legumes. Follow these steps for quality food preparation.

1. Store fresh produce at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the Participant’s Workbook.

2. Review the recipe the day before preparation so ingredients can be selected and chilled. Dried beans should be cooked until they are tender to the bite. The center should be soft and creamy. Chill ingredients, including salad dressings, overnight.

3. Follow the recipe for preparation of ingredients that need to be chopped, diced, minced, or sliced. Leave ingredients in large enough pieces to be identified. Blanch vegetables, if necessary, to set the color or to soften.

4. Gently mix beans, other vegetables, herbs, seasonings, and dressing. Dress the bean salad within 4 hours of service as beans will become tougher from the acid in the salad dressing.

5. Keep bean salads chilled until service.

DO: Show video clip from *Culinary Techniques: Preparing Legume Salads*.

SAY: Next, let’s take a closer look at preparing mixed salads, such as protein salads. Follow these steps for quality food preparation:

1. Store fresh produce at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the Participant’s Workbook.

2. Review the recipe the day before preparation so ingredients can be selected and chilled. Chill ingredients, including salad dressings, overnight.
3. Follow the recipe for preparation of ingredients that need to be chopped, diced, minced, or sliced. Leave ingredients in large enough pieces to be identified. Blanch vegetables, if necessary, to set the color or to soften.

4. Gently mix protein, vegetables, herbs, seasonings, and dressing.

5. Keep protein salads chilled until service.

**DO:** Show video clip from *Culinary Techniques: Preparing Protein Salads.*

**SAY:** Finally, we will discuss preparing composed or arranged salads. Follow these steps for quality food preparation:

1. Store fresh produce at the right temperature. Refer to the chart *Keep Fresh Produce Flavorful* in the Participant’s Workbook.

2. Prepare the base or under liner to frame the salad. A salad green is placed on a plate as the under liner for the main ingredient of the salad. Be sure the green is well drained and dry.

3. Prepare the body or main ingredient of the salad. The main ingredient(s) should be drained and chilled. Follow the recipe for a quality product. When arranging the main ingredient(s) on the under liner, consider the shapes, size, and texture. Vary the shapes and heights of the ingredients for visual appeal.

4. Prepare the salad dressing. Some recipes include salad dressing. However, if the pre-plated salad can be served with the salad dressing on the side, that is the best way. This keeps the salad fresher and allows the customer to add the amount of dressing desired.

5. Add the garnish. The garnish is often described as part of the recipe. A garnish should add both visual appeal and taste appeal. All garnishes should be edible.

**DO:** Show video clip from *Culinary Techniques: Preparing Composed Salads.*

**SAY:** Blanching means dipping a food into boiling water for a very short time, only a minute or two. This method briefly and partially cooks a food. Blanching is used to:

- prepare vegetables for further cooking (for example: broccoli)
- remove strong or bitter flavors (for example: kale)
- soften firm foods (for example: carrots)
- set colors of vegetables (for example: snow peas)
- loosen skins for peeling (for example: ripe tomatoes)

**SAY:** In schools, the main use for blanching is to set the color of vegetables that will be served cold as part of salads. Some vegetables that can be blanched for use in salads include: broccoli, cauliflower, carrots, and snow peas. Some vegetables need to be blanched before stir-frying. Always follow the recipe. Steps for blanching vegetables include:

1. Prepare the washed, cut vegetable.

2. Use a steam kettle, tilting braising pan, or stockpot. Bring water to a boil. Place the vegetables in the boiling water and cook for 2–3 minutes or just until the color of the vegetables becomes
Preparing Salads

brighter (green vegetables will become a brighter green). For small amounts of vegetables to be blanched, the vegetables may be placed in a colander and then the whole colander set in the boiling water.

3. Immediately drain all hot water.
4. Immerse the vegetables into an ice bath (water with ice). Be sure all the vegetables are submerged in the water. Leave about 1 minute, to stop the cooking process.
5. Drain the vegetables well and store covered in the refrigerator until time for use.

DO: Show video clip from Culinary Techniques: Blanching Vegetables.

SAY: To properly and safely use a French or chef’s knife, follow these steps:
1. Keep your fingers curled back and grip the food being cut (ex: cucumber).
2. Hold the knife in the other hand.
3. While keeping the knife’s tip on the cutting surface, lift the heel of the knife.
4. Using the second joint of your index finger as a guide, cut a slice using a smooth, even, downward stroke.

Push out slightly as each cut is made. Adjust the position of the guiding finger after each slice to produce slices of equal size. After a few cuts, slide your fingertips and thumb down the length of the item and continue slicing. For this technique, the tip of the knife stays on the surface and the knife moves up and down only at the hand.

DEMO: Demonstrate the proper way to hold a chef’s knife by placing the thumb and index finger on the blade and wrapping the rest of your fingers around the handle. Cut a cucumber into slices to demonstrate proper use of the knife and holding of food item.

DO: Show video clip from Culinary Techniques: Using the Chef’s Knife.

SAY: Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. Follow the recipe to prepare any salad to meet quality standards. 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:
1. Substitute another salad on the serving line. Follow the school district procedure for menu substitutions.
2. Use the salad or its ingredients another way, if possible, to avoid wasting the food.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.

DO: Review the Quality Score Card for Salads found in the Participant’s Workbook.
Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in Instructor’s Manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing salads. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Salads lesson for this activity.

1. School nutrition assistants may work as partners or individually, depending on the directions from the manager. Ideally, one partner should be someone who cooks and the other, someone who has other responsibilities. Both school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Salads. 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: Preparing Green Salads
   - Culinary Technique: Preparing Fruit Salads
   - Culinary Technique: Preparing Vegetable Salads
   - Culinary Technique: Preparing Potato Salads
   - Culinary Technique: Preparing Pasta and Grain Salads
   - Culinary Technique: Preparing Legume Salads

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Cards to evaluate the products.
Optional Activity: Salad Greens
During this lesson, you may opt to demonstrate how to handle and prepare the following salad greens:

- **Arugula** – medium green leaves; pungent flavor
- **Endive, Belgian** – tight, elongated head; slightly bitter flavor
- **Endive, Curly** – thick, narrow leaves with curly edges; bitter flavor
- **Escarole** – flat, curly-edged leaves is a loose head; bitter flavor
- **Lettuce, Butterhead** – tender, loose, round head of leaves; mild flavor
- **Lettuce, Iceberg** – crisp, pale-green leaves, compact head; very mild flavor.
- **Lettuce, Leaf** – crisp-tender, curly leaves, loose cluster; red or green; mild flavor
- **Lettuce, Romaine** – elongated head, crisp leaves; fairly mild flavor
- **Radicchio** – fairly tender, red-purple leaves, cabbage-like head; slightly bitter flavor
- **Spinach** – tender, deep green leaves; rigid stems should be removed before serving; fairly mild flavor
- **Watercress** – small, round leaves on slender stalks; delicate texture; peppery, pungent flavor

Additional Suggestions
Taste test a selection of new salad greens from the list of salad greens in the lesson. Consider which greens would appeal to students and could be added to your salads.
Instructor’s Manual

Preparing Meat, Poultry, and Fish

Time: 1 hour

National Food Service Management Institute
The University of Mississippi
## Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
</table>
| **Objective 1: Improve the quality of meats, poultry, and fish served to students.** | **Culinary terms**<br>Review culinary terms with participants.  
**Mise en place**<br>Review the necessary *mise en place* for preparing meats, poultry, and fish.  
**Food Safety**<br>Discuss cooking temperatures for meat, poultry, and fish.  
Demonstrate how to take internal temperatures.  
Demonstrate how to sanitize thermometers.  
Discuss thawing methods. |
| **Objective 2: Improve the variety of meats, poultry, and fish served to students.** | **Menu planning**<br>Discuss menu planning recommendations.  
Discuss purchasing recommendations.  
Discuss new trans-fat regulation.  
Review *MyPlate* recommendations. |
| **Objective 3: Improve the appeal of meats, poultry, and fish served to students.** | **Culinary techniques**<br>Review cooking meats, poultry, and fish.  
Discuss meat tenderizers.  
Discuss reducing fats during cooking.  
Introduce dry and moist heat cooking methods.  
Discuss marinades and rubs.  
**Cooking methods**<br>Discuss roasting and baking.  
Review steps using USDA Baked Cajun Fish recipe.  
**Cooking methods**<br>Show video clip from *Culinary Techniques: Roasting and Baking*.  
**Cooking methods**<br>Discuss sautéing cooking method.  
Review steps using USDA Chicken Fajita recipe.  
**Cooking methods**<br>Show video clip from *Culinary Techniques: Sautéing*.  
**Cooking methods**<br>Discuss braising and stewing cooking method.  
Review steps using USDA Chili con Carne with Beans recipe.  
**Cooking methods**<br>Show Braising and Stewing video clip from *Culinary Techniques: Braising and Stewing*.  
**Quality Score Card**<br>Review Quality Score Card for Meat, Poultry, and Fish. |
Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve equipment and gather lab supplies</td>
<td></td>
</tr>
<tr>
<td><strong>Materials needed:</strong></td>
<td></td>
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<tr>
<td>One chicken breast (with skin and wing portion), baked</td>
<td></td>
</tr>
<tr>
<td>Three pre-cooked hamburger patties</td>
<td></td>
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<tr>
<td>Bi-metallic stemmed thermometer</td>
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<tr>
<td>Digital or thermistor thermometer (tip sensitive)</td>
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<tr>
<td>Alcohol pads</td>
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<tr>
<td>Cutting board</td>
<td></td>
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<tr>
<td>TV/DVD combo on cart</td>
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<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
<td></td>
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<tr>
<td>Nametags, optional</td>
<td></td>
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<tr>
<td>Make copies of Participant’s Workbook</td>
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</tr>
</tbody>
</table>
SAY: Welcome to preparing meat, poultry, and fish section of the Culinary Techniques training. In this lesson, we will cover the following objectives:
1. Improve the quality of meats, poultry, and fish served to students.
2. Improve the variety of meats, poultry, and fish served to students.
3. Improve the appeal of meats, poultry, and fish served to students.

SAY: We would like you to understand the main ideas in this lesson, including:
• 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 to the proper internal temperature as specified in the 2013 FDA Food Code. This is done by inserting the thermometer into the thickest part of the meat.
• 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.

DO: Refer to the important terms related to this lesson in the Participant’s Workbook:
• Braise: A moist-heat cooking method used for less tender, large cuts of meat.
• Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• Culinary Technique: A step-by-step food preparation method. The culinary techniques 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: 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 period of time. Other terms that mean the same 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 culinary 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 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 a 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).

**NOTE TO INSTRUCTOR:** Be sure to explain mirepoix before discussing cooking methods. If need be, explain to participants that culinary schools often have new chefs prepare mirepoix over many weeks to practice knife skills.

**SAY:** Gathering your *mise en place* is an important step in food production. Equipment that may be needed includes:
- Cutting boards designated for meat, poultry, and fish
- Appropriate cooking equipment and pans
- Meat thermometers
- Ingredients pre-prepped (thawed, chopped, diced)
- Measuring utensils

Be sure to wash, rinse, sanitize, and air-dry all food-contact surfaces, equipment, utensils and your hands that will be in contact with meat, poultry, fish, and other recipe ingredients.

**SAY:** Speaking of food safety, it is important to use a thermometer when cooking meat, poultry, and fish because it ensures that the food is safe for consumption. 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.

**SAY:** 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.
DO: Demonstrate the correct way to test the temperature of poultry by inserting a stem-type thermometer into the thickest part of the chicken breast. Demonstrate 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.

**NOTE TO INSTRUCTOR:** The day prior to this class, purchase a precooked chicken breast with wing attached. Use precooked hamburger patties to demonstrate stacking portions to take internal temperature. Discuss the differences between bi-metallic stemmed thermometers and digital (thermistor) thermometers. Bi-metallic stemmed thermometers take an average reading from the tip to the dimple. The average temperature is displayed on the dial. Thermistors take a reading from the tip only (tip sensitive).

DEMO: Demonstrate the correct way to clean and sanitize a stem-type thermometer after use.

DEMO: Demonstrate using an alcohol pad.

ASK: If alcohol pads are not available in your school, what can you use to properly sanitize your thermometers?

**FEEDBACK (Answers may include):** Properly mixed and tested sanitizers, such as quaternary ammonia or chlorine.

SAY: Thawing frozen meats is another food safety concern. Frozen meats, like turkey, beef roasts, or chicken, should be thawed in the refrigerator at 41 °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.

**NOTE TO INSTRUCTOR:** The FDA Food Code allows frozen meats to be thawed under running water. This method should only be used when necessary as it wastes water.

SAY: Menu planning practices should be focused on creating 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. Increasing the variety of main courses offered may entice more students into the cafeteria. Further, to control the nutritional content of meat, poultry, and fish consider these suggestions:
- Plan more school-prepared items.
- Choose more low-fat, 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.
SAY: To prepare healthy school meals, you need to purchase healthy meats. For example:

- 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 monounsaturated oils, such as canola, corn, cottonseed, olive, peanut, safflower, soybean, or sunflower oils.
- Lard should not be purchased.
- Avoid hydrogenated oils/fats which contain trans-fats.

NOTE TO INSTRUCTOR: Under the new school breakfast and lunch meal patterns, there is no longer a total fat requirement. Saturated fat must be less than 10% of calories, averaged over a school week. This is not a change from previous National School Lunch Program (NSLP) requirements. There is, however, a new trans-fat requirement. School meals must contain zero grams of added trans-fat per portion. In order for schools to comply with this provision, menu planners must review the nutrition label or manufacturer specifications – these must indicate zero grams of trans-fat per serving. Natural trans-fat in meat and dairy are excluded from this requirement. More detailed information on how to determine the trans-fat levels of mixed dishes, containing both naturally-occurring and added (synthetic) can be found in the Trans Fat section of Food Nutrition Services (FNS) memorandum SP-10-2012.

Nutrition label or manufacturer specifications must indicate zero grams of trans-fat per serving. Manufacturers are allowed to label their products as containing “zero grams” if the product contains 0.5 grams or less, but the product label must state “zero grams” to be an allowable product.

Meats and other animal products that contain naturally-occurring trans-fats are allowed in the school meal programs with proper manufacturer documentation.

SAY: Children should eat 3 to 6 ounces from the meat/meat alternate 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 consequences. According to MyPlate:

- 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 antioxidant 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
Preparing Meat, Poultry, and Fish

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.

SAY: 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 that 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.

SAY: 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 school nutrition professionals, it is important to know basic principles of cooking meats. These principles explain why a recipe works.

SAY: Cooking meat and poultry changes its texture, flavor, and looks, as well as kills any bacteria that might be in the raw product. 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 poisoning.

NOTE TO INSTRUCTOR: Pre-cooked meat, poultry, and fish should be reheated to the proper internal temperature as specified in the 2013 FDA Food Code. Overcooking these items could cause toughness and/or dryness.

SAY: Cooking always causes loss of moisture. This is called cooking loss and results in shrinkage. As a meat gets more done it loses moisture. This is why it is so important to follow the recipe for cooking temperature and cooking time. If you overcook meat, poultry or fish, the dish may yield less than the number of servings planned. In addition, flavor could be lost, the meat may be tough because the protein structure has been changed, or the meat, poultry, or fish could 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).

**SAY:** 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. You can:

- 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.

**ASK:** What fruit is a natural meat tenderizer?

**FEEDBACK (Answers may include):** Pineapple

**ASK:** What is the substance in pineapple that tenderizes meat?

**FEEDBACK (Answers may include):** Bromelain. Papain (from papaya) and bromelain are substances used for meat tenderizing. They may be used in powdered form. However, sodium is typically added to the powered form.

**SAY:** All meat, poultry, and fish have some fat in the meat. Some suggestions for reducing the fat when cooking meat and poultry include:

- 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. 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.
SAY: 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.

SAY: 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 and culinary techniques that use moist heat.

SAY: Dry-heat cooking has no added moisture and is used for more tender pieces of meat, poultry, and fish. These culinary techniques include broiling, 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; ground meats, ham, and other pork products; turkey and chicken; and fish filets and nuggets.

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

ASK: How is fish or poultry poached?

FEEDBACK (Answers may include): Fish or poultry is cooked in liquid that is barely simmering (185 °F).

SAY: Braising and stewing are combinations of 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.

SAY: 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: Oil, acid, and flavoring. A small amount of oil keeps the meat moist. The acid ingredient (examples are vinegar, lemon juice, or other fruit juice), 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 a dry marinade 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 un-breaded 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.

Roasting or baking is a dry heat method used for cooking meat, poultry, or fish in the oven without liquid and without a cover on the cooking vessel. Use the following steps when roasting or baking:

1. Remove all visible fat.
2. Follow the recipe and 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 hinders browning, most recipes suggest adding salt at the end of cooking. Do not add salt unless the recipe calls for it.

Is there salt added to the Cajun fish recipe?

Yes, onion salt.

3. Place meat in the proper cooking pan. 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.

**DO:** Show video clip from *Culinary Techniques: Roasting and Baking.*

**DO:** Refer participants to the handout, USDA Chicken Fajitas (D-40) recipe, in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**SAY:** Sautéing is a dry heat cooking method using high heat and a small amount of fat to cook meat, poultry, and fish rapidly. Searing and stir-frying are also sautéing techniques. Use the following steps when sautéing:

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 meats 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.

**ASK:** What is the safe hot holding temperature for chicken fajitas?

**FEEDBACK (Answers may include):** 135 °F or above.

**DO:** Show video clip from *Culinary Techniques: Sautéing.*

**DO:** Refer participants to the handout, USDA Chili con Carne with Beans (D-20) recipe, in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**SAY:** 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. Use the following steps when braising or stewing:

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 or 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.

DO: Show video clip from Culinary Techniques: Braising and Stewing.

SAY: 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.

DO: Discuss Quality Score Card for Meat, Poultry, and Fish found in the Participant’s Workbook.
Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in Instructor’s Manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing meat, poultry, and fish. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Meats, Poultry, and Fish lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and 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 school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Cards.
Preparing Sandwiches

Time: 1 hour
## Lesson-at-a-Glance

60 minutes

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1:</strong> Improve the quality of sandwiches served to students.</td>
<td><strong>Culinary terms</strong>&lt;br&gt;Review culinary terms with participants.</td>
</tr>
<tr>
<td><strong>Types of breads</strong>&lt;br&gt;Review the various types of breads available for sandwich production.&lt;br&gt;Demonstrate preparation of white bean spread.</td>
<td></td>
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<tr>
<td><strong>Objective 2:</strong> Improve the variety of sandwiches served to students.</td>
<td><strong>Menu planning</strong>&lt;br&gt;Discuss menu planning recommendations.&lt;br&gt;Discuss purchasing recommendations.&lt;br&gt;Review MyPlate recommendations.</td>
</tr>
<tr>
<td><strong>Objective 3:</strong> Improve the appeal of sandwiches served to students.</td>
<td><strong>Preparing sandwiches</strong>&lt;br&gt;Discuss the basic principles of preparing sandwiches.&lt;br&gt;Review and discuss the three ingredients in a sandwich.&lt;br&gt;Discuss the preparation of cold sandwiches.&lt;br&gt;Demonstrate work simplification techniques when handling sliced breads.&lt;br&gt;Demonstrate cutting a slice of bread on the diagonal using a bread knife and chef’s knife.</td>
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<tr>
<td><strong>Preparing wraps</strong></td>
<td><strong>Preparation of wraps</strong>&lt;br&gt;Review and discuss the steps in preparing wraps. Using empty pans that are labeled with ingredients and the tortillas for vegetable wraps. Demonstrate the setup of the work station. Demonstrate making a chicken salad wrap.</td>
</tr>
<tr>
<td><strong>Preparing pocket sandwiches</strong></td>
<td><strong>Preparation of pocket sandwiches</strong>&lt;br&gt;Review and discuss the steps in preparing pocket sandwiches.</td>
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<tr>
<td><strong>Preparing toasted sandwiches</strong></td>
<td><strong>Preparation of toasted sandwiches</strong>&lt;br&gt;Review and discuss the steps in preparing toasted sandwiches.</td>
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### Preparing Sandwiches

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
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<tbody>
<tr>
<td>Preparing toasted sandwiches</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Toasted Sandwiches.</em></td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Review Quality Score Card for Sandwiches.</td>
</tr>
</tbody>
</table>
**Preparation Checklist**

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve equipment and gather lab supplies</td>
<td></td>
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<tr>
<td>Materials needed:</td>
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<tr>
<td>Loaf of whole wheat bread</td>
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<tr>
<td>8” Wraps - 2 flavors</td>
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<tr>
<td>Shredded lettuce</td>
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<td>Julienne carrots</td>
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<tr>
<td>Yellow bell pepper</td>
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<td>Red bell pepper</td>
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<tr>
<td>Plastic wrap</td>
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<td>Bread knife</td>
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<td>Chef’s knife</td>
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<td>Cutting board</td>
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<td>Sheet pans</td>
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<tr>
<td>Prepared chicken salad-1 cup</td>
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<tr>
<td>#8 Scoop</td>
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<tr>
<td>8 inch whole wheat tortilla</td>
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<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
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**Make copies of Participant’s Workbook**
Instructor’s Script

SAY: Welcome to preparing sandwiches section of the Culinary Techniques training. In this lesson, we will cover the following objectives:

1. Improve the quality of sandwiches served to students.
2. Improve the variety of sandwiches served to students.
3. Improve the appeal of sandwiches served to students.

SAY: We would like you to understand the main ideas in this lesson, including:

• Sandwiches are versatile and delicious.
• Whole-grain breads provide important vitamins, minerals, fiber, and other nutrients.
• Try a variety of sandwiches with students.

DO: Refer to the important terms related to this lesson found in the Participant’s Workbook.

• Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• Just-In-Time Preparation: 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 period of time. Other terms that mean the same are batch cooking and cooking to the line.
• Mise en Place (meez-un-plahss): A French term used by chefs and other culinay 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.
• Nutrients: The substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.

SAY: There are numerous types of bread that may be used to make sandwiches in school meals, as you will see in your Participant’s Workbook. Loaf bread or Pullman is the most commonly used bread for sandwiches. The long, rectangular loaves provide slices from 3/8 inch to 5/8 inch thick, it is fine textured, firm bread and works well. Various types of loaf bread include white bread, whole wheat bread, rye, and pumpernickel.

SAY: Quick breads can be used for a sweeter tasting sandwich. Cream cheese and fruit are good fillings for sandwiches made from the following types of quick breads: banana bread, zucchini bread, and carrot bread.

SAY: Wraps are very thin, flat breads that are used for sandwich wraps, burritos, and tacos. Varieties include: corn tortilla, flour tortilla, and flavored sandwich wraps; such as spinach, sun-dried tomato, or whole wheat.
**SAY:** Flatbreads are unleavened breads that come from around the globe. Common flatbreads that are often used for sandwiches include: pita bread, lavash, focaccia, and Chapati or Indian flatbread.

**SAY:** Buns and rolls are excellent choices for sandwiches. A variety of types of buns can be used for sandwiches which include: hamburger, hot dog, and English muffin.

**SAY:** Menu planning practices should be focused on creating healthy school meals. Consider the following when planning healthy school meals:
- Select whole-grain breads for increased fiber and other nutrients.
- Use low-fat cheeses. Good choices include part skim mozzarella and low-fat cheddar cheeses.
- Serve a variety of vegetables such as peppers, tomatoes, spinach, and shredded carrots.
- Use a seasoned bean puree such as white bean and rosemary for the spread.
- Plan a variety of breads such as whole wheat breads, multigrain breads, and brown bread.
- Offer school-baked bread, replacing most of the white flour with whole wheat flour. Begin slowly by replacing 1/3 of the white flour with whole wheat flour and gradually increasing until the whole wheat part is greater than 50%. More leavening ingredients and liquids may be required as percentage of whole-grain flour increases.

**SAY:** To prepare healthy school meals, you need to purchase healthy school foods. For example:
- Purchase ground poultry (without skin, approximately 11% fat) to mix 50/50 with lean ground beef.
- 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.
- Look to local farmers as an alternative to purchasing fresh produce. Check out www.farmtoschool.org for more information.

**SAY:** Children should eat 4-7 ounce equivalents of grains each day with at least half of those grains whole grains. According to MyPlate:
- Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, reduces the risk of coronary heart disease.
- Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, may reduce constipation.
- Eating at least 3 ounce equivalents a day of whole grains may help with weight management.

**SAY:** Children should eat 3 to 6 ounces from the protein group each day. According to MyPlate:
- Foods in the meat, poultry, fish, eggs, nuts, and seed group provide nutrients that are vital for health and maintenance of your body.
- Choose foods from these groups that are low in fat.

**SAY:** Now, let’s discuss the basic principles of preparing sandwiches. There are several types of sandwiches, including cold sandwiches, wraps, pocket sandwiches, and grilled sandwiches.
Preparing Sandwiches

**SAY:** There are three main ingredients used when making a sandwich: breads, spreads, and fillings. Breads provide a means for holding a sandwich, provides the sandwich shape, and adds flavor, texture, and nutrients to the sandwich. Different breads add variety in flavor, texture, size, and shape. Whole wheat bread, focaccia, pita, tortillas, and quick breads may be used for sandwiches. Use fresh bread and keep tightly wrapped until used. Do not refrigerate bread because it will become stale faster.

**SAY:** Spreads add moisture, flavor, and richness to the sandwich. Various spreads include: butter, mayonnaise, salad dressing, ketchup, mustard, low-fat cream cheese, pesto, almond butter, cashew butter, vegetable purees (such as roasted pepper spread), and bean purees (such as white bean spread).

**SAY:** Fillings provide the body of the sandwich and provide most of the flavor. Suggested protein fillings include: low-fat cheese, turkey, eggs, beans, and peanut butter. Vegetable fillings include bell peppers, cabbage, grated carrot, cucumber, lettuce, onion, pickles, mushrooms, radish, salad mix, and tomato.

**SAY:** Let’s discuss the preparation of cold sandwiches.
1. All sandwich breads, spreads, and filling ingredients should be prepared. Meat, poultry, or fish should be cooked, chilled, and sliced or chopped. Vegetables should be washed, dried, and sliced. Spreads should be prepared and chilled. Breads should be sliced.
2. Arrange preparation area. All sandwich ingredients should be within easy reach of the work area.
3. Arrange sandwich bread on work area. Four rows of 12 slices is a manageable number.

**DEMO:** Demonstrate opening the top of a loaf of sliced whole wheat bread for ease of use. Show using both hands to pick up 4 slices of the bread to place on a sheet pan.

4. Spread all bread slices to the edge with desired spread.
5. Portion filling with a dipper or spoon onto alternate rows of bread. Spread to the edges.
6. Arrange lettuce or other vegetable accompaniments on top of filling.
7. Place bread on top of sandwich.
8. Cut sandwiches as desired, being careful not to mash the bread.

**ASK:** What type of knife should be used to slice bread?

**FEEDBACK (Answers may include):** A bread knife. Other types of knives crush the bread when cutting.

**DEMO:** Demonstrate cutting a slice of bread on the diagonal using a bread knife. Demonstrate cutting a slice of bread on the diagonal using a chef’s knife.
SAY: Place sandwiches in sandwich bags or wrap in plastic wrap to maintain freshness. Refrigerate until service.

NOTE TO INSTRUCTOR: Bread should never be stored in the refrigerator. Refrigeration pulls the moisture out of breads. Store at room temperature or in the freezer.

DO: Show video clip from Culinary Techniques: Preparing Cold Sandwiches.

SAY: Next, let’s review the steps when preparing wraps.

1. All wraps, spreads, and filling ingredients should be prepared. Meat, poultry, or fish should be cooked, chilled, and sliced or chopped. Vegetables should be washed, dried, and sliced. Spreads should be prepared and chilled.

2. Arrange preparation area. All sandwich ingredients should be within easy reach of the work area.

DO: Using empty pans that are labeled with ingredients and the tortillas for vegetable wraps. Demonstrate the setup of the work station.

NOTE TO INSTRUCTOR: Use USDA Vegetable Wraps recipe (F-09) as a guide for ingredients. The recipe is found in the Participant’s Workbook.

3. Lay tortillas on clean work surface.

4. Evenly distribute dressing or spread on tortilla wrap.

5. Toppings are placed in lower half of tortilla. Evenly distribute your ingredients. Use meat, poultry, fish, beans, grains, vegetables, or fruits. Hard-to-bite ingredients need to be cut small, but most ingredients should be kept in bigger pieces for easiest rolling and eating.

6. Roll the wrap tightly and securely. Fold in the sides and bottom, roll up tightly, and seal the edges with a dab of cream cheese or other spread.

7. Place wraps in sandwich bags or wrap in plastic wrap to maintain freshness.

8. Refrigerate until service. A variety of foods can be used for the wrap. Try these ideas: whole wheat tortilla, large, sturdy lettuce leaves, whole wheat pita, rice paper wrappers, crepes or lavash bread.

DEMO: Demonstrate how to make a simple chicken salad wrap using the rolled burrito style method.

NOTE TO INSTRUCTOR: Use a number 8 scoop to portion 1/2 cup of prepared chicken salad onto the 8 inch whole wheat tortilla. Fold the tortilla over and keep fingers on the wrap. While pressing down, pull the top layer of the tortilla towards your body, forcing the chicken salad to fill the tube. Then roll forward creating a wrap. This method leaves the ends of the wrap open. Only use this method when ingredients will not fall out of sandwich when eaten.

DO: Show video clip from Culinary Techniques: Preparing Wraps.
Preparing Sandwiches

SAY: Next, let’s discuss the preparation of pocket sandwiches, such as pita or taco.

1. All sandwich pockets (pita, corn tortilla, or flour tortilla), spreads, and filling ingredients should be prepared. Meat, poultry, or fish should be cooked, chilled, and sliced or chopped. Vegetables should be washed, dried, and sliced. Spreads should be prepared and chilled.

2. Arrange preparation area. All sandwich ingredients should be within easy reach of the work area.

3. If the pocket sandwich contains hot meat, poultry, or fish, briefly warm the tortilla or pita on both sides in a dry pan. It will take on just a little color. Heating the tortilla or pita makes it more pliable and easy to handle.

4. Place the protein item such as taco meat, tuna salad, or chicken salad in the bottom of the pocket. This is the heaviest product and will act as a foundation.

5. Add other fillings that may include vegetables or fruits.

6. Spoon on any sauce (salsa).

7. Serve or refrigerate. Place hot pockets in steam table pan and serve immediately. Wrap cold pocket sandwiches to maintain freshness. Refrigerate until service.

DO: Show video clip from Culinary Techniques: Preparing Pocket Sandwiches.

SAY: Finally, let’s review the steps in preparing grilled sandwiches.

1. Gather all ingredients.

2. Place sandwich bread on a sheet pan. A full sheet pan (18” x 26”) will accommodate 24 sandwiches in a 4 x 6 pattern.

3. Brush the outside with melted margarine or butter or vegetable oil. A brush, roller, or spray may be used. Turn the bread over.

4. Add filling to all slices in the pan. Spread evenly.

5. Top with slices of bread. Brush the top with melted margarine or butter or vegetable oil.

6. Brown the sandwich on a griddle, in a hot oven, or under a broiler.

7. Serve immediately.

DO: Show video clip from Culinary Techniques: Preparing Toasted Sandwiches.

SAY: Before any food is placed on the serving line, it should be evaluated using the Quality Score Card which is found in your Participant’s Workbook. The quality standards described on the score card can only be reached when the recipe or package directions are followed. After a food is prepared, 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:

1. Substitute another similar food on the serving line. Follow the school district procedure for menu substitutions.

2. Use the sandwich in another way, if possible, in order to avoid wasting the food.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.

**DO:** Discuss Quality Score Card for Preparing Sandwiches found in the Participant’s Workbook.

**Optional Activity: Culinary Application and Practice Activity**

*NOTE TO INSTRUCTOR:* Items needed for this activity are not included in Instructor’s Manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing sandwiches. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the *Culinary Techniques Preparing Sandwiches* lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the culinary practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Sandwiches. 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 include one of the culinary techniques described in this lesson. Review the steps of each culinary technique:
   - Culinary Technique: Cold Sandwich
   - Culinary Technique: Wraps
   - Culinary Technique: Pocket Sandwich
   - Culinary Technique: Toasted Sandwich

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card for Preparing Sandwiches.
Preparing Dry Beans and Peas

Time: 1 hour
## Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
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<tbody>
<tr>
<td><strong>Objective 1: Improve the quality of dry beans and peas served.</strong></td>
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<tr>
<td>Culinary terms</td>
<td>Review culinary terms with participants.</td>
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<tr>
<td>Legumes</td>
<td>Introduce types of dry beans and peas.</td>
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<tr>
<td><strong>Objective 2: Improve the variety of dry beans and peas served.</strong></td>
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<tr>
<td>Menu planning</td>
<td>Discuss menu planning recommendations. Discuss purchasing recommendations. Introduce the healthy benefits of legumes.</td>
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<tr>
<td><strong>Objective 3: Improve the appeal of dry beans and peas served.</strong></td>
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<tr>
<td>Preparing dry beans and peas</td>
<td>Review and discuss dry bean preparation and cooking. Discuss favorite beans chart. Tasting beans and peas activity.</td>
</tr>
<tr>
<td>Preparing canned beans</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Canned Beans.</em></td>
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<tr>
<td>Preparing dry beans and peas</td>
<td>Demonstrate sorting and conduct sorting beans activity.</td>
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<tr>
<td>Preparing dry beans and peas</td>
<td>Discuss soaking methods.</td>
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<tr>
<td>Preparing dry beans and peas</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Dry Beans/Quick Soak.</em> Review and discuss Quality Score Card for Dry Beans and Peas.</td>
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<tr>
<td>Preparing dry beans and peas</td>
<td>Show video clip from <em>Culinary Techniques: Preparing Dry Beans/Overnight Soak.</em></td>
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<tr>
<td>Preparing dry beans and peas</td>
<td>Demonstrate the preparation of USDA hummus recipe (E-24).</td>
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<tr>
<td>Quality Score Card</td>
<td>Discuss Quality Score Card for Dry Beans and Peas.</td>
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</table>
Preparing Dry Beans and Peas
### Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
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<tbody>
<tr>
<td><strong>Reserve equipment and gather lab supplies</strong></td>
<td></td>
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<tr>
<td><strong>Materials needed:</strong></td>
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<tr>
<td>1 lb. Bags of dry beans, peas, and lentils (1 bag of each)</td>
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<tr>
<td>3-15 oz Cans of beans - Three different types selected from Favorite Beans Chart</td>
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<tr>
<td>Small mixing bowl - 1 per team</td>
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<tr>
<td>Dried beans - 1 cup per team</td>
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<tr>
<td>3 Types of canned beans from Favorite Beans Chart</td>
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<tr>
<td><strong>Hummus Ingredients/Supplies</strong></td>
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<tr>
<td>• 1 lb. 12 oz. Garbanzo beans</td>
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<tr>
<td>• 5 oz. Lemon juice</td>
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<tr>
<td>• Cumin</td>
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<tr>
<td>• 2 tsp. Dehydrated garlic or 2 fresh cloves</td>
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<tr>
<td>• 5 oz. Water</td>
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<tr>
<td>• 1/2 tsp. White pepper</td>
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<td>• Tasting spoons</td>
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<td>• Spatula</td>
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<tr>
<td>• Food Processor</td>
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<tr>
<td>• Serving container for hummus</td>
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<tr>
<td>• 1 Mixing bowl</td>
<td></td>
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<tr>
<td>• Small serving bowls</td>
<td></td>
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<tr>
<td>• Tortilla chips, baked (1 large bag) or Pita bread triangle</td>
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Preparing Dry Beans and Peas
Instructor’s Script

SAY: Welcome to preparing meat, poultry, and fish section of the Culinary Techniques training. In this lesson, we will cover the following objectives:
1. Improve the quality of dry beans and peas served.
2. Improve the variety of dry beans and peas served.
3. Improve the appeal of dry beans and peas served.

SAY: We would like you to understand the main ideas in this lesson, including:
• Dry beans and peas are served as meat alternates in school menus.
• Dry beans and peas are good sources of vegetable protein and fiber.

DO: Refer to the important terms related to this lesson found in the Participant’s Workbook.
• Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• Ethnic: A descriptive term relating to large groups of people classed according to common customs. Ethnic foods and recipes are those that are unique to a particular culture, such as Mexican, Italian, or Native American.
• Just-In-Time Preparation: 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 period of time. Other terms that mean the same are batch cooking and cooking to the line.
• Legume (leg-umes): Seeds that grow in pods, including beans, peas, and lentils. When they are used fresh, they are treated as a vegetable.
• Mise en Place (meez-un-plahss): A French term used by chefs and other culinary 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.

SAY: Dry beans expand 2 to 3 times their original size after cooking. When you prepare one cup of dry beans, it will yield 2 to 3 cups of cooked beans. One pound of dry beans measures 2 cups. The term dry bean refers to the process of allowing bean seeds to dry in their pods until they are fully mature before collecting them at harvest. Dry beans are available in two types packaging: dry bean packages and canned beans. Dry beans need soaking before cooking. Canned beans are soaked, cooked, and recipe ready.

SAY: Let’s discuss the various types of legumes that may be used in school nutrition programs. You may refer to your handout in the Participant’s Workbook. Dry beans are oval or kidney shaped. Beans categorized as red beans may be used in bean burritos, bean tostadas, nachos frijoles, soups, salad bar
choice, marinated salads, and main dishes or side dishes such as vegetarian beans or baked beans. These beans may also include pinto, pink beans, light red kidney, dark red kidney, red beans, pea beans, and black beans.

SAY: Beans categorized as white beans may be used in soups, salads, salad bar choice, or served as a vegetable. These beans include navy, small white, great northern, cannellini (white kidney bean), and garbanzo (chickpeas).

SAY: Peas are round. Peas may be used in side dishes, salads, casseroles, and soups. Peas include black-eyed peas and split peas.

SAY: Lentils are flat disks. Lentils are typically used in soups, and may be green, red, yellow, or black in color.

NOTE TO INSTRUCTOR: Choose dried beans, peas, and lentils that participants are least familiar with in your area. Allow participants to discuss.

DEMO: Provide 1 lb. bag each of dried beans, peas, and lentils to participants. Allow participants to observe the differences.

SAY: Meat alternates is a term used in child nutrition programs to mean main dish foods that provide alternate sources of protein for school lunch and breakfast menus. The groups of foods included as meat alternates are cheese, eggs, cooked dry beans and peas, peanut butter and other nut or seed butters, and yogurt. Guidance information from the U.S. Department of Agriculture explains how to use these foods on school menus. Dry beans and peas are part of the meat, poultry, fish, dry beans, eggs, and nuts food group. Some of the most popular menu items served in schools comes from this important group.

SAY: Menu planning practices should be focused on creating healthy school meals. Consider the following recommendations when planning healthy school menus:

• Cooked dry beans and peas are low in fat and should be frequently offered to students.
• Explore the great variety of beans available.
• Cooked dry beans and peas can be offered in salad bars, served as a vegetable or side dish, made into soups, pureed and served as a vegetable dipper, and served as a meat alternate.
• Try using herbs, spices, and lemon to season food in place of a portion of the salt.

SAY: To prepare healthy school meals, you need to purchase healthy school foods. For example:

• Draining and rinsing sodium-containing canned dry beans can reduce sodium content by about 40%.
• Packaged dry beans are naturally low in sodium.
Preparation of Dry Beans and Peas

**SAY:** Children should consume 3 cups of beans a week, based on a 2,000 calorie meal plan. Dry beans and peas:
- are excellent sources of plant protein.
- provide nutrients such as fiber, iron, potassium, folate, and zinc.
- are naturally low in fat and sodium.
- have no saturated fat or cholesterol.

**SAY:** Dry beans and peas are called legumes (pronounced leg·ume). This group of foods provides vegetable protein and fiber that are important parts of a healthy diet. Protein is made up of building blocks of amino acids; some of these are essential to human growth and some are not. When the protein contains all the essential amino acids, it is called complete. When it lacks some essential amino acids, it is incomplete. Protein from animal sources is generally complete and protein from plant sources is incomplete.

**SAY:** Dry beans and peas are often paired with another food that provides vegetable protein. These combinations provide complete protein in the meal. For example, refried beans on corn tortillas with a little cheese can be a healthy main dish. Other combinations include black beans and rice, red beans and rice, black-eyed peas and cornbread, black-eyed peas and rice, and succotash (corn and lima beans).

**SAY:** The *Dietary Guidelines for Americans* encourages everyone to eat more servings of dry beans and peas because they are excellent sources of protein, dietary fiber, and other nutrients such as iron and zinc; and because these foods are naturally very low in fat. School recipes should be selected to provide a moderate amount of fat and promote the health benefits natural to dry peas and beans. Nutrition aside, legumes are some of the most delicious, versatile foods on any menu.

**SAY:** Dry beans and peas can be purchased dry or canned. If they are purchased dry, the culinary technique is to add the moisture back to the beans before they are cooked. There are many different types of dry beans and peas. Preparing dry beans and peas is a step-by-step process that is the same regardless of the kind of beans or peas. Canned beans, and some peas, are the dry products that have been cooked. They should be added to a recipe at the step where the dry beans or peas have finished cooking.

**SAY:** Sorting means looking through the dry beans or peas to remove any foreign matter or shriveled beans or peas. The foreign matter found most often in dry legumes is small stones about the size of a bean that get in the product during processing. With the volume of dried legumes processed, only human eyes can be counted on to remove anything that should not be cooked. If this step is skipped, a customer could break a tooth eating a delicious chili or bean soup. Shriveled beans or peas should be discarded since they have lost too much moisture and will not cook properly even after soaking. All dry beans must be soaked in water to soften the bean and remove tannins, phytic acid, trypsin inhibitors, and flatulence-causing sugars (oligosaccharides).
DO: Demonstrate sorting dried beans or peas.

**NOTE TO INSTRUCTOR:** Divide group into teams. Provide each team with 1 pan filled with 1 cup dried beans and an empty small mixing bowl to collect the unfit beans.

SAY: Some home cooks may have learned to cook dry beans with soda added to the water. This should never be done by school nutrition professionals because soda destroys thiamin, one of the important B vitamins in dry beans and peas. Beans that are soaked long enough and cooked correctly are very tender and nutritious.

SAY: Be careful with acidic ingredients. Recipes for main dishes that include dry beans and peas often include tomatoes or other acidic ingredients. Other acidic ingredients in bean recipes include molasses, brown sugar (slightly acidic), and ketchup. An acid keeps dry beans from getting soft during cooking. If acid ingredients are added to the soaked beans at the beginning of cooking, the beans will be tough. Recipes usually call for the beans to be cooked until just tender, then acidic ingredients added. This is a good example of why it is important to follow the recipe. Recipes are developed to consider the basic principles of cooking for each type of food.

SAY: Cooked legumes can be prepared 1 or 2 days before they are needed for use in a recipe. After cooking, the legumes should be chilled in the refrigerator in shallow pans. They should remain in the cooking liquid. Once chilled, the pans should be covered and kept at 41 °F and below until the next step of preparation. Continued heating on a steam table will eventually cause a legume to have a floury or pasty taste. Heat the amount needed in batches, just-in-time for service and place on the steam table. Some recipes that include legumes also include cheese. In fact, some of the most popular ethnic recipes in schools combine these two food groups. Since cheese is higher in fat, it is ideal to combine with another food such as a legume that is naturally low in fat.

**NOTE TO INSTRUCTOR:** Choose canned beans that participants are least familiar with in your area. Place drained, canned beans in containers. To prevent cross-contamination, provide tasting spoons to participants.

DO: Discuss Favorite Beans chart found in the Participant’s Workbook.

DEMO: Show participants at least three types of drained, canned beans from the Favorite Beans chart. Allow participants to taste test the variety of beans.

DO: Show video clip from *Culinary Techniques: Preparing Canned Beans*.

**NOTE TO INSTRUCTOR:** Tannins are naturally found in legumes, especially red beans. The darker the bean colors typically the higher tannin content. Flavonoids and tannin compounds which are flavonoid polymers hooked together in chains may form indigestible bonds with proteins and carbohydrates in the seed thus causing flatulence and reducing the nutritional value of beans to consumers. Similarly, phytic acid binds
Preparing Dry Beans and Peas

to some minerals preventing absorption in the intestines, and trypsin inhibitors reduce the enzyme trypsin that promotes protein digestion.

SAY: There are two soaking methods for dried beans and peas. To soak using the quick hot soak method, cover beans with water and bring to a boil. Simmer for 2–3 minutes, and remove from heat. Cover the pot and soak for 1 hour until beans expand two to three times their dry size. Drain and discard the liquid, and proceed with the recipe. To use the overnight cold soak method, pour the beans in a stock pot with enough water to cover. Refrigerate overnight (12 hours). Proceed with the recipe.

DO: Show video clip from Culinary Techniques: Preparing Dry Beans/Quick Soak.


SAY: Measure the liquid according to the recipe. Add the soaked beans. Bring the liquid to a boil, and then reduce heat to simmer until the beans are done. Properly stored and soaked beans will be tender and ready to use after simmering for 45–60 minutes. Beans are done when they can be mashed easily with a fork or spoon. Add acidic foods, such as tomatoes, to the beans after they are tender because they tend to toughen the skin. Follow the recipe to use the cooked beans and peas. Remember, canned, cooked dry beans or peas can be used instead of cooking the dry type.

DEMO: Demonstrate the preparation of USDA Hummus recipe (E-24). This recipe can be found in the Participant’s Workbook.

NOTE TO INSTRUCTOR: Prepare 10 1/2 cup servings of hummus with tahini paste using the following ingredients:
- 1 lb 12 oz garbanzo beans
- 5 oz lemon juice
- 1/4 cup tahini paste or cumin
- 1 1/2 tsp dehydrated garlic or 2 fresh cloves
- 5 oz water
- 1/2 tsp white pepper

Use a food processor to puree the ingredients. For larger groups, consider preparing two batches of the 10 1/2 cup servings. Provide baked tortilla or pita chips and allow participants to taste test the hummus. To prevent cross-contamination provide serving utensil or tasting spoons.

SAY: Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. The quality standards described 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:
1. Substitute another item on the serving line. Follow the school district procedure for menu substitutions.

2. Use the product another way, if possible, in order to avoid wasting the food. This decision 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.

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

**DO:** Discuss the Quality Score Card for Dry Beans and Peas. Use hummus as the product to be scored.

**Optional Activity: Culinary Application and Practice Activity**

**NOTE TO INSTRUCTOR:** Items needed for this activity are not included in Instructor’s Manual.

**Culinary Application and Practice Activity**

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing dry beans and peas using one of the culinary techniques. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Dried Beans and Peas lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Dry Beans and Peas. 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 that were discussed in the lesson. Each culinary technique summary includes a list of the USDA recipes that include that technique.

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card found in the Participant’s Workbook.
Preparing Pasta, Rice, and Grains

Time: 1 hour
<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
</table>
| Objective 1: Improve the quality of pasta, rice, and grains served to students. | Culinary terms  
Review culinary terms with participants.  
Whole Grains  
Discuss whole grains.  
Allow participants to see one type of whole grain.  
Menu planning  
Discuss menu planning recommendations.  
Discuss purchasing recommendations.  
Review MyPlate recommendations. |
| Objective 2: Improve the healthfulness of pasta, rice, and grains served to students. | Grain processing  
Discuss whole versus refined grains.  
Allow participants to compare white versus brown rice.  
Pasta  
Introduce healthfulness of pasta, rice and grains.  
Discuss pasta: Types, shapes, cooking times.  
Rice  
Discuss types of rice and preparation.  
Grains  
Discuss types of grains and preparation.  
Select 3 to 4 grains from the Various Grains chart and discuss with participants. |
| Objective 3: Improve the quality of pasta, rice, and grains served to students. |  
Cooking methods  
Discuss cooking pasta.  
Review steps using USDA Pasta Salad recipe.  
Cooking methods  
Show video clip from Culinary Techniques: Boiling Pasta.  
Cooking methods  
Discuss cooking rice.  
Review steps using USDA Cooking Rice recipe  
Cooking methods  
Show video clip from Culinary Techniques: Cooking Rice.  
Demo: Toasting Brown Rice.  
Cooking methods  
Discuss cooking grains.  
Cooking methods  
Show video clip from Culinary Techniques: Simmering Grains. |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Score Card</td>
<td>Discuss Quality Score Card for Pasta, Rice, and Grains.</td>
</tr>
</tbody>
</table>
**Preparation Checklist**

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve equipment and gather lab supplies</td>
<td></td>
</tr>
<tr>
<td>Materials needed:</td>
<td></td>
</tr>
<tr>
<td>Packages of whole grains (select from list at start of lesson)</td>
<td></td>
</tr>
<tr>
<td>1 lb. Package of white rice</td>
<td></td>
</tr>
<tr>
<td>1 lb. Package of brown rice</td>
<td></td>
</tr>
<tr>
<td>Grains from the Various Grains Chart such as barley, oats, bulgar, and millet</td>
<td></td>
</tr>
<tr>
<td>1 Cup brown rice</td>
<td></td>
</tr>
<tr>
<td>1 small sauce pan with lid</td>
<td></td>
</tr>
<tr>
<td>1 large spoon</td>
<td></td>
</tr>
<tr>
<td>TV/DVD combo on cart</td>
<td></td>
</tr>
<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
<td></td>
</tr>
<tr>
<td>Nametags, optional</td>
<td></td>
</tr>
</tbody>
</table>

**Make copies of Participant’s Workbook**
Instructor’s Script

SAY: Welcome to the preparing pasta, rice, and grains section of the *Culinary Techniques* training. In this lesson, we will cover the following objectives:

1. Improve the quality of pasta, rice, and grains served to students.
2. Improve the variety of pasta, rice, and grains served to students.
3. Improve the appeal of pasta, rice, and grains served to students.
4. Improve the healthfulness of pasta, rice, and grains served to students.

SAY: We would like you to understand the main ideas in this lesson, including:

- A healthy diet is built on foods from the breads and grains group and half your grains should be whole grains.
- Pasta, rice, and grains can be used as main dishes, side dishes, soups, or desserts.
- The shape of the pasta affects the cooking time.
- Different varieties of rice and grains need different cooking times.

DO: Refer to the important terms related to this lesson found in the Participant’s Workbook.

- **Al Dente (al-din-tay):** An Italian term that means “to the tooth”. It is used to describe pasta cooked to a firm texture.
- **Culinary:** Relating to the kitchen or cooking. An example of this 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 boiling pasta, cooking rice, and simmering grains.
- **Just-In-Time Preparation:** 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 prevents holding any food for a long time. Other terms that mean the same thing are *batch cooking* and *cooking to the line*.
- **Mise en Place (meez-un-plahss):** A French term used by chefs and other culinary 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.
- **Nutrients:** The substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.
- **Simmer:** To cook a food in a liquid just below the boiling point.

**NOTE TO INSTRUCTOR:** Simmering temperature is between 185 °F and 205 °F.

DO: Refer participants to the handout on Common Whole Grains in the Participant’s Workbook.
Healthy school meal programs serve whole grains. Common whole grains include:

- Any grain with “whole” listed before the grain (whole grain corn or whole cornmeal, whole bulgur, whole oat flour, whole rye flour, whole wheat flour, white whole wheat flour, whole durum flour, whole grain barley, whole rye)
- Various grains with “groats” listed after the grain (oat groats, buckwheat groats)
- Various grains with “berries” listed after the grain (wheat berries, rye berries)
- Cracked wheat
- Crushed wheat
- Graham flour
- Oatmeal or rolled oats (regular, quick, or instant)
- Brown rice (regular or quick), brown rice flour, wild rice
- Popcorn (is not creditable in food-based menu planning)

Pass around samples of the whole grains from the list above and below:

Some less commonly used whole grains include:

- Whole amaranth
- Whole buckwheat
- Whole millet
- Whole quinoa
- Whole sorghum
- Whole spelt
- Whole teff
- Whole triticale

Amaranth grain is gluten free, spelt is a type of wheat, teff is a grass grain that is similar to quinoa, and triticale is a hybrid of wheat and rye.

Most people eat many different kinds of breads, but may overlook the great variety of foods that include pasta, rice, and cereals. This lesson is about cooking pasta, rice, and other grain products. These foods are grouped together for several reasons. They provide similar nutrients, including carbohydrates, B vitamins, and iron. They can be prepared using the same basic culinary techniques, and they are used on menus in similar ways as ingredients in soups, main dishes, side dishes, salads, and even desserts.

Menu planning practices should be focused on creating healthy school meals. To increase the use of whole grains, and control the nutrition content, consider the following:

- Increase the variety of cooked whole grain cereals offered at breakfast.
- Plan a variety of whole grain side dishes.
- Choose low-fat sauces to be served with pasta dishes.
- Serve a variety of vegetables with pasta dishes.
- Serve whole grain pasta for increased fiber and other nutrients.
To prepare healthy school meals, you need to purchase healthy school foods. For example, purchase brown rice instead of white rice and purchase whole grains instead of refined grains.

Children should eat 4 to 7 ounce equivalents of grains each day with at least half of those grains whole grains. According to MyPlate:

- Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, reduces the risk of coronary heart disease.
- Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, may reduce constipation.
- Eating at least 3 ounce equivalents a day of whole grains may help with weight management.

Whole grains consist of the entire cereal grain seed or kernel. The husk is the inedible outer covering. It is removed prior to processing the grain. The kernel has three parts; the bran, the germ, and the endosperm. Usually the kernel is cracked, crushed, flaked, or ground during the milling process. If the finished product retains the same relative proportions of bran, germ, and endosperm as the original grain kernel, it is considered a whole grain.

The outer layer of the grain kernel is known as the bran. This outer layer is rich in fiber, B vitamins, and the majority of the grain’s minerals and other health-promoting substances called phytochemicals. The germ contains B vitamins, vitamin E, trace minerals, healthy fats, antioxidants, and phytochemicals. The large, starchy endosperm of the grain kernel contains complex carbohydrates, protein, and smaller amounts of B vitamins.

In contrast to whole grains, refined grains are milled to remove part or all of the bran and/or germ. This process removes 25–90% of the nutrients in the grain. Most (but not all) refined grains are enriched to add back some of the iron, thiamin, niacin, and riboflavin lost in the milling process. Enriched grains also have folic acid added to increase this important nutrient in our diets.

Show participants a package of white rice and a package of brown rice. Research and discuss the differences.

Pasta, rice, and grains are a good source of complex carbohydrates or starch. They are also naturally low in fat and sodium and not high in calories unless fat is added. Pasta, rice, and grains are a source of important vitamins and minerals (especially iron) either naturally or from added enrichment. And let’s not forget delicious.

It could be said that this group of foods can “fill you up without filling you out!” Some people think that bread, cereals, rice, and pasta are “fattening.” This is not true. The reason that some people think of these foods as high in calories is they are often served with added spreads, sauces, or recipe ingredients that are high in fat. Culinary experts today have developed recipes that have great taste with moderate calories. These recipes begin with pasta, rice, and grain products cooked with the correct culinary technique.
SAY: Pasta is a general name for a simple dough mixture made from hard wheat flour and water. Hard wheat is high in protein and gluten strength. The dough is like a paste that is rolled thin and then shaped in many different ways. Pasta can be purchased fresh, frozen, or dry. Schools usually purchase dry pasta. Lasagna noodles are available frozen for use from the frozen state.Filled pastas, such as ravioli and tortellini, are often purchased frozen. To some extent, one pasta can be substituted for another. However, most recipes suggest one or more pasta shapes that are appropriate for the sauce or other ingredients in the recipe.

SAY: There are hundreds of shapes and sizes of pasta with each shape used for different preparations based on how the sauce will cling, the texture desired, or how the product will be used. For example:

- Pasta shapes with holes or ridges, such as wagon wheels or rotini, are perfect for chunkier sauces such as chicken pasta salad.
- Thin, delicate pastas, such as angel hair or vermicelli, are better served with light, thin sauces such as mushroom and garlic pasta.
- Thicker pasta shapes, such as fettuccine, work well with heavier sauces such as tomato and garlic pasta.
- Very small pasta shapes, such as alphabet shapes and *acini di pepe*, are good for soups such as tomato soup.

SAY: Flavored pasta is available in a variety of shapes in both the dried and fresh forms. Vegetable ingredients are added to pasta to provide both color and flavor. An example of flavored pasta is spinach noodles that are green. Follow the package directions for cooking flavored pastas. The flavored pastas are delicious and also make pasta dishes more attractive because of the color.

SAY: Cooking time depends on the shape of the pasta.

ASK: What has a shorter cooking time, thin spaghetti noodles or angel hair spaghetti noodles?

FEEDBACK (Answers may include): Angel hair spaghetti noodles because they are thinner.

SAY: It is important to be familiar with different shapes of pasta so cooking times can be adjusted. The larger and fuller the pasta shapes, the longer the cooking time. Most pasta recipes specify cooking times for pasta cooked al dente, tender but firm. Al dente is an Italian phrase that means “to the tooth.” Some of the pasta shapes and cooking times are shown in the Cooking Chart for Various Pasta Shapes. Just seeing this chart on cooking times helps to emphasize how important it is to follow the recipe and cook pasta the right way.

DO: Refer participants to Cooking Chart for Various Pasta Shapes in the Participant’s Workbook.
Preparing Pasta, Rice, and Grains

**SAY:** Pasta gets bigger and heavier when it is cooked. Generally, pasta doubles or triples in weight when it is cooked. Likewise, the volume increases two to two and one-half times during cooking. So, if 1 gallon of dry pasta is measured, the cooked pasta would measure 2–3 gallons. Follow the recipe to cook the amount needed.

**SAY:** The general rule for cooking pasta is for 1 pound of pasta, use 1 gallon of water, 1 teaspoon of salt, and 1 teaspoon of oil. For 100 servings of spaghetti, 6 gallons of water, 2 tablespoons of salt, and 2 tablespoons of oil are needed to cook 6 pounds of dried spaghetti. When pasta is to be used as an ingredient in a recipe that will be cooked more, like macaroni and cheese, it should be slightly under cooked. This would mean reducing the cooking time by about 2 minutes. Pasta that is not cooked enough is tough and chewy. Pasta that is overcooked is soft and pasty. When overcooked pasta is combined with a sauce, it often breaks apart.

**SAY:** Handle pasta the right way after it is cooked. Like most foods, pasta is best when it is cooked and served right away. However, it is sometimes necessary to cook it ahead and hold it until time for service. Some suggestions for holding pasta are:

1. When pasta is to be served immediately - drain, add the sauce, and serve.
2. When pasta is to be held a short time for service later - drain, toss with a small amount of oil to prevent sticking, cover, and hold in the warmer.
3. When pasta is to be served as part of a salad - cook the pasta a day ahead so it will be chilled when combined with all the other salad ingredients. Drain, cover with cold water just long enough to cool. The pasta does not need refrigeration for the short time it is cooling in the water. When pasta is cool, drain the water, and toss pasta lightly with oil to prevent sticking or drying out. Store covered in the refrigerator. Do not combine hot pasta with cold ingredients for a salad.
4. When pasta is cooked a day ahead for service in a heated dish, drain, and cover with cold water just long enough to cool. The pasta does not need refrigeration for the short time it is cooling in the water. When pasta is cool, drain the water and toss lightly with oil to prevent sticking or drying out. Store covered in the refrigerator. When it is time to use the pasta, immerse it in boiling water until just long enough to heat it through. Drain immediately and use according to the recipe. The pasta should not be cooked more, just heated to serving temperature.
5. When pasta is to be used in a cooked dish, slightly undercook the pasta.

**NOTE TO INSTRUCTOR:** Say to participants: cooked pasta may be held at 41 °F or below for up to seven days.

**SAY:** Now let’s discuss basic principles of preparing rice. Schools may purchase different kinds of rice or receive different varieties as USDA foods. The rice package will state the kind of rice. There are many varieties of rice that differ in the size and shape of the grain. When long grain rice is cooked, it is fluffy and the grains separate easily. Short grain rice is sticky and plump when cooked. Brown rice still has a bran layer and so it takes longer to cook. For more information about varieties of rice, review the Cooking Chart for Varieties of Rice in the Participant’s Workbook.
Many different varieties of rice can be enriched. Enriched rice means that certain vitamins and iron have been added to the rice. Follow the recipe for the correct amount of liquid for the kind of rice and culinary technique to be used. Follow the directions on the recipe or the package of rice. It is not necessary to rinse most rice as it is generally clean. The standard ratio for cooking rice is two parts water to one part rice. However, follow the recipe exactly.

Instead of seasoning rice and other grains with butter or margarine, consider these options:
- The flavor of rice can be enhanced by using chicken, beef, or vegetable stock as the cooking liquid.
- Added ingredients for good flavor include onions, vegetable and fruit juices, garlic, herbs, and spices.
- Select a recipe that includes new and different flavors.

Follow the recipe for the correct cooking time. Rice can be cooked in the steamer or in the oven if a steamer is not available. Cooking times vary with the culinary technique used. Follow the recipe for a quality product. Rice that is overcooked becomes mushy or sticky and the grains cling together. Overcooking means the starch takes in too much water and the grain begins to lose its shape.

After rice is cooked, it becomes highly perishable. It should be served immediately, kept heated, or be chilled in shallow pans and kept refrigerated until time for use.

Finally, let’s discuss the Basic Principles of Preparing Grains found in your Participant’s Workbook. There are many kinds of grain dishes that can be included on school menus. Grain dish examples are bulgur or cracked wheat, buckwheat or kasha, and oatmeal. Of course, corn, cornmeal, and grits are also from the grain group. Grain dishes may be served at any meal and are often important ingredients in soups, main dishes, side dishes, and even desserts. When any grain is cooked, three things should happen:
1. The plant fiber becomes soft so it can be eaten.
2. The grain product keeps its shape and doesn’t become a paste.
3. The starch in the grain product is changed so it can be digested.

NOTE TO INSTRUCTOR: Say to participants that grits are not a whole grain, therefore beginning school year 2014 they will no longer be served in the school nutrition program.

Follow the directions in the recipe to cook the grain product the right way. Grain products (or cereals) can be cooked in a steam-jacketed kettle or a steamer. They can even be prepared in a heavy kettle on the range. Simmering is the most popular culinary technique for cooking grains. A grain product should not be stirred too much and should not be overcooked. Either action means that the product will be sticky and gummy. Recipes for grain products include the amount of liquid to be used and the cooking time. Following the recipe exactly means the product will be done and will meet quality standards.

In general, grain products are done when almost all the liquid has been absorbed. Some recipes suggest that the grain product be removed from the heat when almost all the liquid has been absorbed,
and then left to stand covered for 5–10 minutes. Standing allows time for the remaining liquid to be absorbed. Like rice, the liquid used to cook other grains can be chicken, beef, or vegetable stock flavored with herbs or spices or vegetables. Use a recipe and follow it exactly. The most common culinary technique used to cook grains is simmering.

**DEMO:** Pass around 3 to 4 grains from the Various Grains chart and discuss with participants. Suggest barley, oats, quinoa, and wheat. Refer participants to the chart found in their Participant’s Workbook.

**DO:** Refer participants to the handout, USDA Pasta Salad recipe (E-08), in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**SAY:** This lesson stresses the importance of adhering to specific cooking times for pasta, rice, and grains for quality. Use the following steps when boiling pasta:

1. Measure the water in a steam-jacketed kettle. Basic recipe for pasta is 1 pound pasta, 1 gallon water, 1 teaspoon salt, and 1 teaspoon oil. Increase all ingredients based on the number of pounds of pasta to be cooked.

   **SAY:** Salt can be omitted.

   **ASK:** How much water, salt, and oil would be required for two pounds of pasta?

   **FEEDBACK (Answers may include):** 2 gallons water, 2 tsp. salt, and 2 tsp. oil.

   **SAY:** Bring water to a rolling boil and add pasta gradually. Stir to separate the pieces. When cooking filled pastas like ravioli, add to boiling water and then gently simmer so filled pasta pieces are not broken.

   2. Return water to a boil and begin timing. Cook uncovered until the pasta is al dente. Do not stir the pasta while it is cooking. Be careful not to overcook. If pasta is to be used in a recipe that will be cooked again, cooking can be reduced by about 2 minutes.

   3. When pasta is done, drain immediately in a colander. Do not rinse pasta that is to be served hot. A small amount of oil can be tossed with the pasta to prevent sticking.

   4. Serve hot pasta immediately. To cool pasta, cover with cold water until chilled. Drain, cover, and refrigerate until needed.

   5. Pre-cooked pasta can be reheated by quickly immersing in boiling water. Do not allow to cook. Drain. Add sauce or seasonings and serve immediately.
**NOTE TO INSTRUCTOR:** Say to participants that pasta may be cooked in the steamer using the following steps:

1. Place a full size 4 inch perforated pan inside a solid full size 4 inch steam table pan.
2. Weigh 3 lbs. of pasta into pan.
3. Cover with 3 gallons of water.
4. Stir pasta to prevent sticking.
5. Place pasta in steamer and cook according to recipe.
6. Remove and drain.

**ASK:** Have you ever under or over cooked pasta? Did you serve the pasta? Why or why not?

**NOTE TO INSTRUCTOR:** Allow time for participants to share their answers.

**DO:** Show video clip from Culinary Techniques: Boiling Pasta.

**DO:** Refer participants to the handouts, Cooking Chart for Varieties of Rice and USDA Cooking Rice recipe (B-03) in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**SAY:** Now let’s talk through the steps for cooking rice:

1. Measure or weigh the amount of rice to be cooked.
2. Pour into 12 x 20 x 2-inch pans. Use no more than 3 pounds of rice per pan.

**ASK:** How do you know if you have 3 lbs. or less in a pan?

**FEEDBACK (Answers may include):** You must weigh the rice. To convert to measure, you must weigh first, and then transfer to a measured container. Record the measure.

**SAY:**

1. Bring the liquid to a boil in a separate container. If additional ingredients are to be used in the rice, add them to the liquid. Pour the boiling liquid over the rice.
   For added ingredients such as sautéed onions, garlic, celery, carrots, or mushroom, use a maximum of 3 cups of added ingredients for each 1 pound of rice. For each 1 pound of rice, use 1 quart of water or stock.
2. Cover tightly with aluminum foil and either steam or bake in the oven. Times will vary depending on the variety of rice used.
NOTE TO INSTRUCTOR: The times shown below are for white rice, long grain (regular or parboiled), or medium grain. If time permits; share cooking times with participants.

- Compartment steamer – steam at 5 lb. pressure for 25-30 minutes
- Conventional oven – bake at 350 °F for 25–30 minutes
- Convection oven – bake at 350 °F for 20–25 minutes

SAY: One option in cooking rice and other grains is to slightly toast it before cooking to bring the nuttier flavors.

DEMO: Toast a small amount of brown rice.

3. Remove from heat and let rice remain covered for 5–10 minutes. Fluff rice with a fork before serving.
4. To hold rice before serving, cover tightly with aluminum foil and hold at or above 135 °F in the warmer.

DO: Show video clip from Culinary Techniques: Preparing Cooking Rice.

SAY: Simmering grains is a culinary technique that can be used for most grains including breakfast cereals such as grits, cream of wheat, and oatmeal. Use the following steps when simmering grains:
1. Measure the water in a steam-jacketed kettle. Follow the recipe for the amount of water and salt for each pound of grain.
2. Bring water to a rolling boil and add grain gradually while stirring with a wire whip. Add seasonings according to the recipe. When cooking breakfast cereals such as grits or oatmeal, stir until some thickening begins.
3. Return water to a simmer, cover, and cook until most of the liquid has been absorbed. Do not continue to stir the grain during cooking since that will cause the grain to be sticky and gummy. The time needed for cooking will vary with the variety of grain, the amount being cooked, and the cooking temperature. Be careful not to overcook.
4. When most of the liquid has been absorbed, remove from heat. Serve immediately. Some grains will need to be drained. Others should be covered and allowed to absorb the remaining moisture.
5. To hold cooked grains, cover with aluminum foil and hold in a warmer.

DO: Refer participants to the Various Grains Chart handout in the Participant’s Workbook.

DO: Show video clip from Culinary Techniques: Preparing Simmering Grains.

DO: Divide participants into small groups. Provide each group with a container of cooked pasta. Half of the groups should receive overcooked pasta, and the other half properly cooked pasta.
NOTE TO INSTRUCTOR: If the class is very large, you may ask for 2 volunteers from the audience to evaluate the overcooked and properly cooked pasta.

NOTE TO INSTRUCTOR: Discuss Quality Score Card for Pasta, Rice, and Grains found in the Participant’s Workbook. Allow groups to share responses based on type of pasta scored.

SAY: Maintaining quality standards means that before any food is placed on the serving line, it should be evaluated using the Quality Score Card. The quality standards described on the score card can only be reached when the recipe or package directions are followed. After a food is prepared, 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:

1. Substitute another similar food on the serving line. Follow the school district procedure for menu substitutions.

2. Use the pasta, rice, or grain in another way, if possible, in order to avoid wasting the food. Some examples of ways these foods can be used include soups, rice pudding, casseroles, and other mixed dishes.

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

Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in instructor’s manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing pasta, rice, and grains. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques: Preparing Pasta, Rice, and Grains lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the culinary practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Pasta, Rice, and Grains. 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 include one of the culinary techniques described in this lesson. Review the steps of each culinary technique:
   - Culinary Technique: Boiling Pasta
   - Culinary Technique: Cooking Rice Using a Steamer or Oven
   - Culinary Technique: Simmering Grains

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card for Pasta, Rice, and Grains.
Instructor’s Manual

Preparing Soups

Time: 1 hour

National Food Service Management Institute
The University of Mississippi
## Lesson-at-a-Glance

### 60 minutes

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1:</strong> Improve the quality of soups served to students.</td>
<td>Review culinary terms with participants.</td>
</tr>
<tr>
<td><strong>Objective 2:</strong> Improve the healthfulness of soups served to students.</td>
<td>Review the steps for preparing stock. Demonstrate straining stock. Use of commercial stock. Taste test regular and low sodium commercial chicken base.</td>
</tr>
<tr>
<td><strong>Culinary terms</strong></td>
<td>Discuss menu planning recommendations. Discuss purchasing recommendations.</td>
</tr>
<tr>
<td><strong>Preparing stocks</strong></td>
<td><strong>Preparing soups</strong></td>
</tr>
<tr>
<td>Introduce types of soup. Review basic soup ingredients. Discuss seasoning soups. Demonstrate skimming fat from soups.</td>
<td></td>
</tr>
<tr>
<td><strong>Objective 3:</strong> Improve the appeal of soups served to students.</td>
<td></td>
</tr>
<tr>
<td><strong>Preparing clear soup</strong></td>
<td>Review and discuss the steps in preparing clear soup. Review recipe.</td>
</tr>
<tr>
<td><strong>Preparing clear soup</strong></td>
<td>Show video clip from <em>Culinary Techniques: Clear Soup</em>.</td>
</tr>
<tr>
<td><strong>Preparing thick soup</strong></td>
<td>Review and discuss the steps in preparing thick soup. Review recipe.</td>
</tr>
<tr>
<td><strong>Preparing thick soup</strong></td>
<td>Show video clip from <em>Culinary Techniques: Thick Soup</em>.</td>
</tr>
<tr>
<td>Pureed soup</td>
<td>Demonstrate how to puree soup using an immersion blender.</td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Review and discuss Quality Score Card for Soups.</td>
</tr>
</tbody>
</table>
Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
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<tr>
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<td><strong>Materials needed:</strong></td>
<td></td>
</tr>
<tr>
<td>Fine mesh strainer</td>
<td></td>
</tr>
<tr>
<td>Cheese cloth</td>
<td></td>
</tr>
<tr>
<td>Coffee filter</td>
<td></td>
</tr>
<tr>
<td>Chicken base</td>
<td></td>
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<tr>
<td>Chicken base, low sodium</td>
<td></td>
</tr>
<tr>
<td>1 quart Water</td>
<td></td>
</tr>
<tr>
<td>1/2 cup Vegetable oil</td>
<td></td>
</tr>
<tr>
<td>4 ounce Ladle</td>
<td></td>
</tr>
<tr>
<td>Liquid measuring cup</td>
<td></td>
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<tr>
<td>Immersion blender</td>
<td></td>
</tr>
<tr>
<td>2 quart liquid measuring container</td>
<td></td>
</tr>
<tr>
<td>2 cups Chicken broth</td>
<td></td>
</tr>
<tr>
<td>1-15 oz Canned beans</td>
<td></td>
</tr>
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<td>Tasting spoons</td>
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Instructor's Script

SAY: Welcome to the preparing soups section of the Culinary Techniques training. In this lesson, we will cover the following objectives:
1. Improve the quality of soups served to students.
2. Improve the appeal of soups served to students.
3. Improve the variety of soups served to students.
4. Improve the healthfulness of soups served to students.

SAY: We would like you to understand the main ideas in this lesson, including:
• Soups containing flavorful vegetables and fruits are tasty and appealing.
• Soups can be thick and hearty such as chunky chowders, thick vegetable soups, or savory bean soups. Soups can be smooth and creamy such as pureed butternut squash soup.
• Soups can be served hot such as minestrone soup or cold such as peach and yogurt soup.

DO: Refer to the important terms related to this lesson found in the Participant’s Workbook.
• Broth: A flavorful, aromatic liquid made by simmering water or stock with meat, vegetables, and/or spices and herbs.
• Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• Just-In-Time Preparation: Preparing a menu item in small enough amounts so that it will be at its peak of quality when placed on the service line. This preparation schedule avoids holding any food for a long period of time. Other terms that mean the same are batch cooking and cooking to the line.
• Mise en Place (meez-un-plahss): A French term used by chefs and other culinary 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.
• Nutrients: The substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.
• Simmer: To cook a food in a liquid just below the boiling point.
• Stock: A flavorful liquid prepared by simmering meat, poultry, fish, and/or vegetables in water until the flavor is extracted.

SAY: Let’s discuss how to make a stock. There are some important steps to do when making a stock. The ideal time to make a stock is when whole turkeys or other whole meats are on the menu. The meat is removed and the bones cooked with vegetables and seasonings to make a stock.
SAY: Follow these instructions to prepare one gallon of white stock with chicken or turkey as described in your Participant’s Workbook.

- Approximately 8 pounds of bones (turkey or chicken)
- 8 ounces onions, chopped
- 4 ounces celery, chopped
- 4 ounces carrots, chopped
- Cover with 6 quarts of cold water.
- Do not add salt to the stock.
- Bring the raw bones and liquid to a boil and reduce the heat so the liquid is at simmer (do not boil). After about 1 hour, add the vegetables and cook until the liquid is reduced by one-third. This will take about 3 hours. Skim the stock as needed during the cooking time.

SAY: After the stock is ready, it should be strained to separate all the solids, the bones, and vegetables from the liquid. Remove the stock from the heat. Using a ladle, carefully ladle the stock from the pot and strain it through a very fine strainer. The strainer should be fine enough that no solids are strained through and the liquid is clear. Use the best tool available for straining stock. Some tools that can be used include a fine mesh-type strainer, a small hand-held colander, a china cap, cheesecloth, or a large coffee filter in a colander.

DO: Show participants a fine mesh-type strainer, cheesecloth, and a coffee filter.

DEMO: Pour 1 cup of prepared commercial chicken stock through the cheesecloth, and 1 cup through the coffee filter (filter over small mixing bowls).

NOTE TO INSTRUCTOR: Because commercial stock has been previously strained, you will only collect a small amount of fat and/or debris.

SAY: After the stock has been strained, cool it quickly in shallow pans in the refrigerator or place in an ice water bath. Stir the stock periodically during the cooling process. When the stock is completely chilled (41 °F or less), remove any fat that is on the top.

SAY: Stock is a clear, flavored liquid that freezes well. Chilled stock can be frozen in 1 gallon amounts to be used for sauces. However, once a stock has been used to make a sauce, the sauce itself should not be frozen. Sauces do not freeze well and should be made in amounts needed the day of production.

SAY: Always start your stocks in cold water. By starting with cold water the entire mixture heats at the same time. The impurities from the bones collect on top of the water and can easily be skimmed off. If hot water is added to the bones, the impurities will coagulate and stay in the water making the stock cloudy.

SAY: It is important to allow the water and bones to simmer. Remember, simmering is cooking just below the boiling point.
ASK: What is the approximate simmering temperature?

FEEDBACK (Answers may be): 185 °F. At this temperature, the bones release their flavor into the liquid. When a stock is boiled, the impurities and the fat mix in with the water and the stock becomes cloudy.

SAY: A good stock is clear, like a commercial stock base mixed with water to make a broth. Skimming the stock frequently during cooking removes impurities and fat that rise to the top so the stock remains clear.

SAY: Broths made from commercial chicken stock base, beef stock base, and vegetable stock base are all popular substitutes for scratch-made stock. Although they save labor costs, a commercial stock base never gives as good a flavor as a home-made stock. Regular commercial stock bases are high in sodium, and for that reason their use should be limited in school kitchens. It is always important to choose ingredients that are consistent with the principles of the Dietary Guidelines for Americans. Substitute a low-sodium for a regular commercial stock base.

SAY: Follow these guidelines when using commercial stock bases:
1. Reduce the amount of regular commercial stock base and use only half to three quarters as much as recommended in the directions. Use the amount of water recommended. If low-sodium stock base is available, follow the directions and use it full-strength.
2. Make the sauce using water as the liquid. At the end, add only enough of the stock base to get the flavor needed. Begin with half the amount recommended. Add the stock base and then taste test for flavor. Use the least amount of regular stock base needed for flavor.
3. Do not add additional salt or use flavorings such as onion salt or garlic salt.

NOTE TO INSTRUCTOR: In advance of class, prepare one quart of regular and one quart of low-sodium stock from commercial chicken base. Provide participants with tasting spoons. Compare sodium content as stated on nutrition facts label.

DEMO: Conduct regular and low-sodium chicken base taste test.

SAY: Menu planning practices should be focused on creating healthy school meals. Soups are versatile and delicious. They are a creative way to serve more fruits, vegetables, or beans to students. Consider these recommendations when planning healthy school menus.

- Use a low-sodium broth, stock, or soup base for the foundation of soups.
- Try using herbs, spices, and lemon for seasonings in place of a portion of the salt.
- Include dried beans or whole-grain products like bulgur to thicken soups.
- Use low-fat refried beans as a thickener in soups and to add fiber and other nutrients.
- Use whole wheat pasta in small shapes for soups.
To prepare healthy school meals, you need to purchase healthy school foods. For example:

- Use low-fat or fat-free milk (fluid, evaporated, or fat-free dry milk) to replace cream or half-and-half in soups.
- Purchase beans and whole-grain products for use in soups.
- Look to local farmers as an alternative to purchasing fresh produce. Check out www.farmtoschool.org for more information.

There are basically two types of soups: clear and thick. Clear soups are broth based and include vegetable soup, beef vegetable soup, chicken vegetable soup, chicken noodle soup, and beef barley soup. Thick soups are of a denser consistency and include vegetable purees, such as tomato soup; bean soups, such as black bean soup; chowders, such as corn chowder; or cream soups, such as cream of broccoli soup.

The primary ingredients of a soup are liquid, principle ingredients, and seasonings. For the liquid, consider:

- using vegetables such as mirepoix (celery, onion, carrots) to prepare a stock as the soup’s foundation.
- purchasing a low-sodium stock base.
- enhancing the flavor of purchased stock base with a vegetable mirepoix.
- using fruit and/or vegetable juices for part of the liquid.

For the principle ingredients, consider:

- choosing seasonal vegetables as the primary ingredient for soups.
- introducing new vegetables by adding a small quantity to popular soups.
- using fresh or frozen fruits or vegetables in soups.
- adding whole grains, such as barley or whole wheat pasta, to make a hearty soup.

For the seasonings, consider:

- using a small amount of lemon juice or vinegar to heighten the soup’s flavor.
- adding fresh herbs shortly before service for the best flavor.
- adding spices early in the cooking process to bring out their flavor.

Follow basic principles for cooking soups. Cuts of meat that are less tender should be added early in the cooking process. Poultry needs to be added early enough so that it cooks thoroughly. Add fish close to the end of the cooking process to keep it from overcooking. For grains and pasta, allow a little more time than cooking in plain water. Soaked beans, lentils, and black-eyed peas should be added with the liquid so they will fully cook. A small-diced cut of potatoes, carrots, and winter squashes will require 30–45 minutes to cook. Green vegetables should be added during the final 15–20 minutes of cooking the soup.

Why should green vegetables be added at the end of cooking?
FEEDBACK (Answers may be): To prevent overcooking of tender vegetables. Green vegetables typically have a shorter cooking time.

SAY: You may need to adjust the consistency of some soups. Thick soups may continue to thicken during cooking and may need additional stock or water added to adjust the consistency.

SAY: Broth-based soups may be prepared in advance, cooled, and refrigerated. This facilitates removing the congealed fat from the surface. Alternatively, skim the top layer of fat from a hot soup with a ladle.

DEMO: Demonstrate skimming fat using a 4 ounce ladle.

NOTE TO INSTRUCTOR: Fill a 1 gallon liquid measure container with hot water just prior to lesson. Pour 1/2 cup of liquid vegetable oil into the water. Skim using 4 ounce ladle.

DO: Refer participants to the handout, USDA Vegetable Soup recipe (H-04), in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: Now, let’s discuss the preparation steps when making clear soup.
1. Assemble the ingredients. Cut vegetables uniformly. Uniform vegetables ensure uniform cooking and an attractive soup. Pieces of vegetables should be large enough to be identifiable but small enough to eat with a spoon.
2. Sweat vegetables (onions, celery, and carrots) in small amount of oil.
3. Add the liquid.
4. Add the seasonings.
5. Add additional ingredients according to their cooking time. Grains and pastas should be cooked separately and added to the soup at the end. Cooking starches in the soup makes it cloudy. Add long-cooking vegetables first and short-cooking vegetables near the end.
6. Simmer until vegetables are tender to blend the flavors.
7. Serve immediately or chill quickly.

DO: Show video clip from Culinary Techniques: Clear Soup.

DO: Refer participants to the handout, USDA Bean Soup recipe (H-01), in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: The other type of soup is thick soups. Let’s discuss the preparation steps for making thick soups such as puree, bean soup, or chowder.
1. Assemble the ingredients. Cut vegetables uniformly. Uniform vegetables ensure uniform cooking and an attractive soup. Pieces of vegetables should be large enough to be identifiable but small enough to eat with a spoon.
Preparing Soups

2. Sweat vegetables (onions, celery, and carrots) in small amount of oil.
3. Add the liquid.
4. Add remaining starchy vegetables, soaked dried beans, flavorings, and meats (optional).
5. Simmer until vegetables are tender.
6. Puree soup in a food mill or with an immersion blender if desired.
7. Pureed soups and chowders rely on the starches present in the vegetables to thicken.

**DO:** Show video clip from *Culinary Techniques: Thick Soup.*

**DEMO:** Demonstrate how to puree soup using an immersion blender.

**NOTE TO INSTRUCTOR:** Prepare a 2 quart clear measuring container with 2 cups of broth. Add 1-15 oz can of drained beans and puree using an immersion blender. SAY to the participants that some of the beans may be withheld from the puree process and added back whole to provide greater texture and eye appeal.

**SAY:** Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. The quality standards described on the score card can only be reached when the recipe or package directions are followed. After a food is prepared, 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:

1. Substitute another similar food on the serving line. Follow the school district procedure for menu substitutions.
2. Use the soup in another way, if possible, in order to avoid wasting the food.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.

**DO:** Discuss Quality Score Card for Soups found in the Participant’s Workbook.
Optional Activity: Culinary Application and Practice Activity

**NOTE TO INSTRUCTOR:** Items needed for this activity are not included in Instructor's Manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing soups. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Soups lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the culinary practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Soups. 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 include one of the culinary techniques described in this lesson. Review the steps of each culinary technique:
   - Culinary Technique: Clear Soup
   - Culinary Technique: Thick Soup

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the service line. Use the Quality Score Card for Soups.
Preparing Dairy Products

Time: 1 hour
# Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1: Improve the quality of dairy products served to students.</td>
<td></td>
</tr>
<tr>
<td>Culinary terms</td>
<td>Review culinary terms with participants.</td>
</tr>
</tbody>
</table>
| Types of cheese/cheese making activity | Introduce types of cheeses.  
Conduct cheese taste test-cheddar versus processed.  
Conduct first phase of cheese making activity. |
| Menu planning | Review meal pattern requirements for meat alternates.  
Discuss menu planning recommendations.  
Discuss purchasing recommendations. |
| Objective 2: Improve the appeal of dairy products served to students. | |
| Cooking cheese | Discuss culinary principles when cooking with cheese. |
| Substitutions | Discuss appropriate substitutions.  
Conduct cheese taste test using feta. |
| Cooking cheese | Review cooking tips for cheese.  
Review recipe. |
| Cooking cheese | Show video clip from *Culinary Techniques: Tips for Cooking Cheese*. |
| Preparing cheese sauce | Review preparing cheese sauce.  
Review recipe. |
| Preparing cheese sauce | Show video clip from *Culinary Techniques: Cheese Sauce*. |
| Cheese making activity | Conduct final phase of cheese making activity.  
Taste test. |
| Quality Score Card | Discuss Quality Score Card for Dairy Products. |
Preparing Dairy Products
## Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

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<tr>
<td>Cheddar cheese - 1 inch cubes - 1 per participant</td>
<td></td>
</tr>
<tr>
<td>American processed cheese slices - 1/2 slice per participant</td>
<td></td>
</tr>
<tr>
<td>Cheese food (Velveeta) - 1 inch cubes-1 per participant</td>
<td></td>
</tr>
<tr>
<td>Feta cheese - 1 inch cubes-1 per participant</td>
<td></td>
</tr>
<tr>
<td>Toothpicks - 3 per participant</td>
<td></td>
</tr>
<tr>
<td>Cheese Making Activity-Instructor’s Demo</td>
<td></td>
</tr>
<tr>
<td><em>For small groups, allow 1 of each item per participant.</em></td>
<td></td>
</tr>
<tr>
<td>• 10 to 16 oz. Plastic cup –1</td>
<td></td>
</tr>
<tr>
<td>• Rubber band – 1</td>
<td></td>
</tr>
<tr>
<td>• Coffee filter - 1</td>
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<tr>
<td>• Low-fat milk – ¼ cup</td>
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<tr>
<td>• Lemon juice - 1 tsp</td>
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Instructor’s Script

SAY: Welcome to preparing dairy products section of the Culinary Techniques training. In this lesson, we will cover the following objectives:
1. Improve the quality of dairy products served to students.
2. Improve the appeal of dairy products served to students.

SAY: We would like you to understand the main ideas in this lesson, including:
• Cheese and cheese dishes are served as meat alternates in school menus.
• Cheese dishes must be prepared just-in-time for service to be at peak quality.

DO: Refer to the important terms related to this lesson in the Participant’s Workbook.
• Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• Culinary Technique: A step-by-step preparation method. The culinary techniques discussed in this lesson include cooking cheese.
• Just-In-Time Preparation: Preparing a menu item in small enough quantities that it will be at its peak of quality when placed on the serving line. This preparation avoids holding any food for a long period of time. Other terms that mean the same thing are batch cooking and cooking to the line.
• Mise en Place (meez-un-plahss): A French term used by chefs and culinary 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.

ASK: Can you name foods that are made using milk?

NOTE TO INSTRUCTOR: Allow participants to share answers.

SAY: There are a number of different types of cheeses that may be used in school nutrition programs. Natural cheese is a very concentrated food. One pound of natural cheese may contain the protein and fat of 1 gallon of milk. Natural cheeses are made by a traditional process and are considered living. This means that a natural cheese, like aged cheddar, will age or ripen with an improvement in flavor. A natural cheese will eventually spoil or over ripen. Cheese made from low-fat or skim milk is lower in fat content than cheeses made from whole milk. Because natural cheeses have a more intense flavor than process cheeses, a smaller amount of natural cheese can often be used to give a good flavor without adding so much fat.

DEMO: Prepare small cubes of each type of cheese. Provide toothpicks for taste testing to prevent cross-contamination. Provide napkins for slice of cheese. Sliced cheese may be cut in half.
Processed cheese is a blend of fresh and aged natural cheeses that have been melted, pasteurized, and then mixed together with an emulsifier. Its flavor depends on the flavor of the various cheeses used to make it. Low-fat pasteurized processed cheese products are available. Cheese food is a pasteurized and processed item that also has had other ingredients added, such as milk, whey, or flavorings. Cheese food has a milder flavor than natural or processed cheese, melts more quickly, and has a softer texture. Processed cheese and cheese foods do not ripen or age, though over time they will eventually lose quality and become inedible.

Allow participants to taste test a half inch diced cube of natural cheddar, a slice of American processed cheese, and a half inch diced cube of cheese food (Velveeta). Allow participants to discuss the differences.

NOTE TO INSTRUCTOR: Any product labeled with the wording imitation cheese or cheese product does not meet the requirements for use in school meal programs. Cheese Making Activity may be done as instructor’s demo for large audiences.

Conduct cheese making activity using the following steps:

1. Provide each participant with a 10 to 16 oz plastic cup, 1 rubber band, 1 coffee filter (white), and 1/4 cup skim milk. Place the 1/4 cup of skim milk in a small portion cup.
2. Have each participant to add 1 teaspoon of lemon juice to the 1/4 cup of skim milk. Watch as the milk starts to thicken.
3. Have participants place the coffee filter inside the 10 to 16 oz plastic cup, and secure using the rubber band.
4. Have participants pour the thickened liquid into the coffee filter.
5. Set aside until end of lesson.

Meat alternates is a term used in child nutrition programs to mean main dish foods that provide alternate sources of protein for school breakfast and lunch menus. The groups of foods included as meat alternates are cheese, eggs, cooked dry beans and peas, peanut butter and other nut or seed butters, and yogurt. Guidance information from the U.S. Department of Agriculture explains how to use these foods in school menus. Cheese is part of the milk, yogurt, and cheese food group. Some of the most popular menu items served in schools comes from this important group.

Cheese is counted as a meat alternate for school meals, even though it is from the milk group. Cheese is typically high in fat. To keep school meals moderate in fat, it is important to follow recipes and use only the amount of cheese called for in the recipe. More cheese means more fat, so measure it carefully. Because of the wonderful variety of cheeses, including low-fat cheeses, a great deal of flavor can be added to a dish with a small amount of cheese carefully selected to complement other flavors in the dish.
Preparing Dairy Products

**SAY:** Menu planning practices should be focused on creating healthy school meals. Consider using low-fat cheeses and other dairy products, and offering low-fat sour cream or low-fat or fat-free yogurt for a topping in place of sour cream. Cheese is a meat alternate for lacto-vegetarians.

**SAY:** To prepare healthy school meals, you need to purchase healthy school foods. For example:
- Purchase low-fat or fat-free yogurt fortified with vitamins A and D.
- Purchase low-fat cheeses such as part-skim mozzarella, and other low-fat or fat-free dairy items.
- Offer low-fat sour cream or low-fat or fat-free yogurt for a topping in place of sour cream.

**SAY:** You should follow culinary principles when cooking with cheese. If you must substitute cheeses, this should be done only with the approval of the manager. Substituting a lower fat cheese is one way to reduce the fat in a recipe. However, the substitution should only be made if the flavor of the two cheeses is very similar. For example, mozzarella cheese has about half the amount of fat as cheddar cheese, but a much milder flavor. Mozzarella could be substituted for cheddar in a recipe that has other lively flavors but not in a recipe that is bland. Mozzarella in a macaroni and cheese recipe would result in a very bland dish. Low-fat cheese, like low-fat mozzarella can be blended with American cheese or cheddar cheese to lower the fat of the recipe and maintain good flavor.

**DEMO:** Prepare small cubes of feta. Provide toothpicks for taste testing to prevent cross-contamination.

**DO:** Allow participants to taste test feta cheese.

**ASK:** Why would mozzarella cheese not be an appropriate substitute for feta cheese?

**FEEDBACK (Answers may include):** Feta cheese is much saltier than mozzarella. Feta cheese does not melt smoothly when heated like mozzarella.

**SAY:** When cooked, low-fat cheeses will react differently than natural whole-milk cheeses. In general, low-fat cheese will melt better when it is grated and then added to a cooked recipe. Low-fat cheddar cheese can be substituted in most recipes that call for natural cheddar. When making any ingredient substitution, the manager and the cook should discuss how the substitution will be made. Then the recipe should be made in a 25 portion amount and taste tested with feedback from students. Processed cheese and cheese foods are not equal substitutes for natural cheese because they do not have the characteristic flavor of natural cheese. Some cheese foods will not melt and are not appropriate for cooking.
SAY: Hard cheeses, like cheddar or parmesan, get soft when heated, and then they melt. When heating is continued, the fat in the cheese separates and then a tough, rubbery curd forms in long strings. This rubbery curd is the cheese protein that is overcooked. As the cheese cools, it becomes hard. To prevent this from happening, several things can be done.
- Do not overcook the cheese. When cheese melts, it is done. Rubbery, tough cheese is overcooked.
- Grate or grind the cheese before it is added to other ingredients. This helps the cheese to melt before it is overheated.
- Use processed cheese or aged natural cheese for blending in mixtures rather than mild natural cheese.

SAY: Cheese melts in an oven between 300 °F and 335 °F so dishes containing cheese should be cooked at 350 °F or lower. When cheese is added as a topping to a product that must be cooked for a long time, it should be added during the last 10 minutes.

DO: Refer participants to the handout, USDA Pizza with Cheese Topping (D-30) recipe, in their Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: Some cooking tips for cheese include:
1. Store cheese wrapped air tight in the refrigerator. Cheddar and Swiss cheese can be frozen in 1 pound blocks, although it is not recommended. Frozen cheese should be thawed in the refrigerator and used within 10 days. Thawed cheese will be crumbly, but can be used in cooked dishes.
2. Remember to cook cheese at 350 °F or less.
3. Do not overcook cheese because it will become stringy and tough.

DO: Show video clip from Culinary Techniques: Tips for Cooking Cheese.

DO: Refer participants to the handout, USDA Cheese Sauce (G-08A) recipe, in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: Now, let’s discuss the steps to make a cheese sauce. First, make a roux by melting the fat and adding the flour and seasonings. Stir until the flour and fat are combined. Cook over medium heat, while stirring continuously. The recipe will give an estimated time. A white roux should be cooked only long enough to cook the flour and avoid a pasty taste. A roux should be cooked at a moderate temperature. Be sure to stir continuously to avoid lumps. Slowly add heated milk to the flour mixture, stirring continuously. Cook until smooth and thickened. Finally, add grated cheese to the white sauce and stir over low heat until cheese melts.

DO: Show video clip from Culinary Techniques: Cheese Sauce.
DO: Conduct cheese making activity finale using the following steps:
   1. Give each participant a napkin.
   2. Have participants remove the coffee filter and squeeze the rest of the liquid out of the curds.
   3. Tell participants the liquid in the cup is known as the whey; while the white substance in the coffee filter is known as cheese curds.
   4. Allow participants to taste test the cheese curds.
   5. Tell participants that this activity may be conducted using vinegar instead of lemon juice for a tarter flavor.

DO: Refer participants to the Quality Score Card for Dairy Products in the Participant’s Workbook.

SAY: Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. The quality standards described 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:
   1. Substitute another meat or meat alternate on the serving line. Follow the school district procedure for menu substitutions.
   2. Use the product another way, if possible, in order to avoid wasting the food. This decision must be made by the manager and the cook 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.
   3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.
Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in the instructor’s manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing dairy products. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Dairy Products lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice Score Card for Dairy Products. 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: Cooking Tips for Cheese
   - Culinary Technique: Cheese Sauce

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card.
Preparing Eggs

Time: 1 hour
## Lesson-at-a-Glance

60 minutes

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1: Improve the quality of eggs served to students.</strong></td>
<td></td>
</tr>
<tr>
<td>Culinary terms</td>
<td>Review culinary terms with participants.</td>
</tr>
<tr>
<td>Egg products</td>
<td>Review and discuss the available egg products. Demonstrate how to crack open an egg.</td>
</tr>
<tr>
<td>Menu planning</td>
<td>Discuss menu planning recommendations. Discuss purchasing recommendations.</td>
</tr>
<tr>
<td>Food safety</td>
<td>Review and discuss safe handling practices for eggs.</td>
</tr>
<tr>
<td>Egg quality</td>
<td>Demonstrate egg freshness using the float test.</td>
</tr>
<tr>
<td>Egg anatomy</td>
<td>Discuss the anatomy of an egg.</td>
</tr>
<tr>
<td><strong>Objective 2: Improve the appeal of egg dishes served to students.</strong></td>
<td></td>
</tr>
<tr>
<td>Preparing eggs</td>
<td>Discuss use of eggs in recipes. Demonstrate egg emulsions. Discuss safe cooking temperature for egg products. Review and discuss egg preparation.</td>
</tr>
<tr>
<td>Preparing eggs</td>
<td>Review and discuss quality preparation of hard cooked eggs.</td>
</tr>
<tr>
<td>Preparing eggs</td>
<td>Show video clip from <em>Culinary Techniques: Hard Cooked Eggs.</em></td>
</tr>
<tr>
<td>Preparing eggs</td>
<td>Review and discuss quality preparation of scrambled eggs.</td>
</tr>
<tr>
<td>Preparing eggs</td>
<td>Show video clip from <em>Culinary Techniques: Scrambled Eggs.</em></td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Review and discuss Quality Score Card for Eggs</td>
</tr>
</tbody>
</table>
## Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

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<thead>
<tr>
<th>Lesson Tasks</th>
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<td>Reserve equipment and gather lab supplies</td>
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<td><strong>Materials needed:</strong></td>
<td></td>
</tr>
<tr>
<td>1 Dozen - Eggs, fresh, large (add another dozen for groups larger than 20)</td>
<td></td>
</tr>
<tr>
<td>Offer vs. Serve bowls</td>
<td></td>
</tr>
<tr>
<td>1 Egg - 3 to 4 weeks old</td>
<td></td>
</tr>
<tr>
<td>2 Clear, pint measuring containers</td>
<td></td>
</tr>
<tr>
<td>32 oz. Water</td>
<td></td>
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<tr>
<td>6 inch Disposable plate - 1 per team</td>
<td></td>
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<tr>
<td>Immersion blender</td>
<td></td>
</tr>
<tr>
<td>1/4 cup Balsamic vinegar</td>
<td></td>
</tr>
<tr>
<td>1/2 cup Water</td>
<td></td>
</tr>
<tr>
<td>Small mixing bowl</td>
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**Instructor’s Script**

**SAY:** Welcome to the preparing eggs section of the *Culinary Techniques* training. In this lesson, we will cover the following objectives:

1. Improve the quality of eggs served to students.
2. Improve the appeal of egg dishes served to students.

**SAY:** We would like you to understand the main ideas in this lesson, including:

- Eggs and egg dishes are served as meat alternates in school menus.
- Eggs and egg dishes must be prepared just-in-time for service to be at peak quality.

**DO:** Refer to the important terms related to this lesson in the Participant’s Workbook:

- **Culinary:** Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
- **Culinary Technique:** A step-by-step preparation method. The culinary techniques discussed in this lesson include cooking eggs.
- **Egg Products:** Processed and convenience forms of eggs for food service. These products can be classified as refrigerated liquid, frozen, dried, and specialty products.
- **Just-In-Time Preparation:** Preparing a menu item in small enough quantities 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*.
- **Mise en Place** *(mez-un-plahss):* A French term used by chefs and other culinary professionals to describe all the different steps 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.

**SAY:** Before we discuss how to properly prepare eggs, let’s talk about the various types of egg products available for use in school kitchens.

**DO:** Refer participants to the Types of Egg Products handout in the Participant’s Workbook.

**SAY:** The most widely used egg product is refrigerated liquid eggs. These eggs are packaged in containers that range in size from bags containing a few ounces to cartons (8 ounce–5 pounds) and lacquer coated tins and plastic pails up to 40 pounds. Liquid eggs are available in different forms, such as whole, egg whites, egg yolks, and various blends of yolk and white.

**NOTE TO INSTRUCTOR:** Only whole eggs may be counted as a meat alternate in reimbursable school meals.
Preparing Eggs

SAY: Frozen egg products are also available for use in school kitchens. These products containing egg yolk usually have salt, sugar, or corn syrup added to prevent gelation or increased viscosity during freezing. Frozen eggs are typically packed in 30 pound containers and in 4, 5, 8, and 10 pound pouches or waxed or plastic cartons. Frozen eggs are available in different forms, such as whole, salted whole, whole eggs with corn syrup, whole eggs with added yolk (fortified), whole eggs with yolk and corn syrup, egg whites, egg yolks, salted yolk, sugared yolk, and yolk and white blends with or without sweeteners or salts.

SAY: Another type of egg product is dried eggs. These egg products are packaged in 6 ounce pouches, and 3 and 25 pound poly packs. Available forms include whole eggs and yolk solids.

SAY: Finally, a school nutrition operation may choose to use specialty egg products. For example:
• Chopped hard-cooked, peeled eggs, cryogenically frozen, may be used on salad bars or pre-made salads.
• Whole hard-cooked, peeled eggs, plain, or pickled.
• Frozen hard-cooked egg rolls or long eggs – albumen is cooked around a center core of egg yolk. Sliced and used for salads.
• Frozen quiche mixes.
• Frozen scrambled egg mix in boilable pouch.
• Scrambled egg mixes (frozen, refrigerated liquid, or dried).
• Egg substitutes are refrigerated liquid or frozen egg products formulated as substitutes for whole eggs. Such products usually contain only egg white. The yolk is replaced with other ingredients such as non-fat dried milk, vegetable oils, emulsifiers, stabilizers, anti-oxidants, gums, artificial color, minerals, and vitamins.
• Frozen precooked products, such as egg patties, fried eggs, crêpes, scrambled eggs, egg pizza, omelets, French toast, quiches, or egg breakfast sandwiches.

NOTE TO INSTRUCTOR: Explain to participants that specialty egg products may be used in school kitchens to save time and labor, plus eliminating food safety concerns associated with undercooked egg products. In addition, egg products must meet federal guidelines to be counted as a meat alternate in reimbursable school meals.

SAY: Meat alternate is a term used in child nutrition programs to mean main dish foods that provide sources of protein other than meat for school breakfast and lunch menus. The groups of foods included as meat alternates are eggs, cheese, cooked dry beans and peas, peanut butter and other nut or seed butters, and yogurt. Guidance information from the U.S. Department of Agriculture explains how to use these foods on school menus.

SAY: Eggs contain a perfect protein, but also contain a significant amount of cholesterol. In school meals, eggs are used in cooking, served for breakfast, and sometimes served as part of the main dish for school lunches.
ASK: Is there a nutritional difference between white and brown eggs?

FEEDBACK (Answers may include): No! The egg shell color does not affect the nutritional value. If you look at the ears of a chicken, you can SAY the color of the egg shell. White ear chicks lay white eggs, and brown ear chicks lay brown eggs.

ASK: What is the best way to crack open an egg?

FEEDBACK (Answers may include): Experts agree the best way is to crack the egg on a hard, flat surface.

DEMO: Demonstrate breaking open an egg. Break an egg on the side of a bowl, and then break an egg on a flat surface. Allow participants to discuss the difference.

SAY: Menu planning practices should be focused on creating healthy school meals. Consider the following recommendations when planning healthy school meals:

• Eggs are a good source of protein.
• If additional fat is needed for the preparation of eggs, choose unsaturated oils such as olive or other vegetable oils.
• Try using herbs, spices, onions, and peppers for seasonings in place of part of the salt.
• Hard-cooked eggs can be offered in salads as a meat alternate.

SAY: Purchase refrigerated liquid egg products or frozen egg products for greatest convenience and food safety.

NOTE TO INSTRUCTOR: Explain that frozen liquid egg products are pasteurized to destroy pathogens. This means that they must be rapidly heated and held at a minimum required temperature for a specified time. This destroys Salmonella, but it does not cook the eggs or affect their color, flavor, nutritional value, or use. Dried egg whites are pasteurized by heating in the dried form, again for a specified time and at a minimum required temperature.

SAY: Children need 4–6 ounce equivalents from the meat and beans group each day. One egg is a two ounce equivalent. Eggs are naturally nutrient-dense food, which means they have a high proportion of nutrients to calories. Eggs are an excellent source of choline and a good source of the highest quality protein and riboflavin. There are 72 calories per one large egg. The yolk only is high in cholesterol, but egg whites are cholesterol-free.

SAY: For safety in school kitchens, follow general egg handling recommendations, such as:
• Refrigerate shell eggs at 41 °F or below. Do not freeze.
• Store shell eggs in their case.
• Store away from food with strong odors such as fish, apples, cabbage, or onions.
• Rotate eggs first-in/first-out.
Preparing Eggs

ASK: How do you know an egg is fresh?

FEEDBACK (Answers may include): Look at the pack date on the container or you can test for freshness by using the “float” test.

DO: Demonstrate how to test freshness of eggs using the float test.

NOTE TO INSTRUCTOR: Place an egg that is 1 week old in a clear glass of water. Next, place an egg that is 3 to 4 weeks old in a clear glass of water. Eggs contain an air pocket. The older the egg, the larger the air pocket. If the egg sinks to a completely horizontal position, the egg is approximately 1 week old. If it floats in a vertical position with the smallest end up, it is probably older than 3 weeks.

DO: Crack each egg (fresh and old) on to a plate. Allow participants to observe the difference.

NOTE TO INSTRUCTOR: The fresh egg white and yolk should be thick and not spread widely in the bowl.

DO: Discuss the anatomy of an egg. Crack open several eggs and place on small plates. Distribute to groups of participants.

NOTE TO INSTRUCTOR: Within the eggshell are two membranes that separate at the large end of the egg to form the air cell. The albumen (the white part) is made up of an outer thin white layer, a thick layer and another thin layer. On each end of the yolk are the chalazae (pronounced kaleeze). These fibrous cords stretch through the albumen to hold the yolk in place and prevent the yolk from bumping against the shell. If your egg has a prominent chalazae, that is a sign of freshness. There may be a small blood spot in a small number of eggs. This blood spot is nothing to worry about and does not affect cooking. Try to pick up the yolk of the freshest egg without breaking. This will demonstrate the membrane layer of the yolk.

SAY: Eggs are unique and one of nature’s most versatile foods. As an ingredient in a recipe, eggs do many different things. Eggs can:

• Thicken a food. Examples include egg custard and quiche, or egg and cheese pie.
• Add color. Examples include yellow cake and egg custard.
• Provide moisture. Examples include cookies or brownies.
• Form an emulsion. An emulsion describes a mixture of substances that do not ordinarily mix, like oil and water. Eggs hold such a mixture together. Mayonnaise is an emulsion.
• Add nutritive value. Eggs provide protein and important vitamins and minerals.

DO: Demonstrate the emulsion power of eggs. Place 1/2 cup of balsamic vinegar and 1/2 cup water into a blender (or use a 2 cup clear measuring container and an immersion blender). Show participants the separation of the vinegar and the water. Next, while blending, add 1 egg. Blend until thickened. Show participants the emulsion.
NOTE TO INSTRUCTOR: Balsamic vinegar is preferred because the dark color shows the clear separation from the water.

SAY: Eggs are delicate in more ways than just their shell. To be at their peak of quality, eggs must be kept refrigerated at 41 °F or below. At room temperature, eggs can age more in one day than they will in a whole week under proper refrigeration. For this reason, eggs should be kept in the refrigerator until time for use, unless a recipe states that the eggs should be at room temperature. Room temperature eggs are sometimes required in a cake recipe. Never take a case of eggs from the refrigerator and leave it at room temperature all morning during food production. It is very important that scrambled eggs and dishes with a lot of eggs, like a quiche, be prepared for just-in-time service. Egg yolks held too long will turn green from the reaction of the egg yolk to the air.

SAY: Being careful with eggs means knowing how to handle this product the right way to prevent foodborne illness. Eggs, like other poultry products, can be contaminated with Salmonella bacteria that are found in the intestines of chickens. These bacteria can cause a foodborne illness if not killed by heat. Egg dishes should be cooked to 155 °F. Cook whole eggs until the white is at 145 °F and is firm. Remember, whenever raw eggs have been handled, it is necessary to wash your hands thoroughly. Always clean and sanitize any surface or utensil that has come in contact with raw eggs.

SAY: Be sure to take the temperature of a large pan of eggs in several locations to make sure safe, internal temperatures have been reached throughout.

SAY: Egg products or processed eggs are eggs that have been prepared a special way and then pasteurized. Pasteurized and unpasteurized eggs should be handled the same way. Both are capable of becoming contaminated with foodborne bacteria.

SAY: The package directions explain how the egg product should be substituted for shell eggs in a recipe. All egg products should be used only in foods that will be thoroughly cooked such as breads, cakes, long-cooked casseroles, or baked custards. When frozen egg products are used, thaw in the refrigerator only the amount to be used within 24 hours.

SAY: Egg substitutes are not used very often in schools since they are designed mainly for people who want to reduce their intake of cholesterol. Also, egg substitutes cannot be credited toward meeting the meat alternate requirement in school meals. There are two kinds of egg substitutes; one made from soy or milk proteins, and the other made from real egg white and milk or soy protein that takes the place of the egg yolk.

SAY: Let’s discuss general egg preparation. Egg white coagulates between 144 °F and 149 °F and the yolk between 149 °F and 158 °F. Therefore, it is not necessary to cook eggs until hard or rubbery in order to kill any bacteria that may be present. Whole eggs cooked until the white is set (completely coagulated and firm) and the yolk is beginning to thicken (no longer runny but not hard) are considered to have met necessary time and temperature requirements for safety.
Preparing Eggs

SAY: Scrambled eggs need to be cooked until firm throughout with no visible liquid egg remaining. Cook scrambled eggs in small batches no larger than 3 quarts according to rate of service, until firm throughout and there is no visible liquid egg remaining. Pooling eggs, the practice of breaking large quantities of eggs together and holding before or after cooking, greatly increases the risk of bacterial growth and contamination. Never leave egg or egg-containing dishes at room temperature for more than 1 hour (including preparation and service time).

ASK: What is the safe cold holding temperature for egg dishes?

FEEDBACK (Answers may include): Hold cold egg dishes below 41 °F.

ASK: What is the safe hot holding temperature for egg dishes?

FEEDBACK (Answers may include): Hold hot egg dishes above 135 °F.

NOTE TO INSTRUCTOR: Identify the Temperature Danger Zone according to the state's food code. Hot holding temperature may be 140 °F in some states.

SAY: Do not hold hot foods on the serving line for longer than 1 hour. Always cook eggs and egg dishes before placing on steam table. Do not combine eggs that have been held in a steam table pan with a fresh batch of eggs. Always use a fresh steam table pan. Do not add raw egg mixture to a batch of cooked scrambled eggs held on a steam table. Finally, when refrigerating a large quantity of a hot egg-rich dish or leftovers, divide into several shallow containers so it will cool quickly.

SAY: A greenish color appears around the yolk when eggs have been overcooked or allowed to cool slowly in the cooking water. Hard-cooked eggs in the shell should be cooked for the minimum length of time to make them solid and then cooled in cold running water or ice water to prevent the green color.

ASK: Why do you never mix two different batches of eggs?

FEEDBACK (Answers may include): Never mix two different batches of eggs because it is a type of cross-contamination. Dangerous pathogens could pass from the old pan into the new pan. This increased length of holding time could allow for pathogen growth.

DO: Refer participants to the handout, USDA Egg Salad Sandwich (F-03) recipe in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: Let’s take a look at preparing hard cooked eggs using a steamer:
1. Lightly spray steam table pans with non-stick spray.
2. Crack the eggs and add to the steam table pan. (4 dozen for each 12 x 20 x 2-inch pan)
3. Place in preheated steamer at 5 pound pressure for 6-8 minutes.
Preparing Eggs

4. Remove from steamer and drain off moisture.
5. Cool slightly then chop.
6. Chill thoroughly.

**DO:** Show video clip from *Culinary Techniques: Hard Cooked Eggs.*

**DO:** Refer participants to the handout, USDA Breakfast Burrito with Salsa (J-02) recipe in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**SAY:** Next, let’s discuss preparing scrambled eggs:

1. Use fresh or defrosted frozen eggs. Prepare no more than 3 quarts as a batch so eggs will not have to be held too long on the serving line.
2. Beat eggs slightly at medium speed, using the wire whip attachment for the mixer.
3. Add milk and salt according to the recipe being used.
4. When cooking eggs, you have several methods to choose from depending on equipment available. Cook the eggs using one of these methods:
   a. To cook in a fry pan, griddle, or steam-jacketed kettle, lightly coat pan with vegetable spray. Pour in egg mixture. Cook over low heat, stirring occasionally, until desired consistency.
   b. To cook in a compartment steamer, lightly coat pan with vegetable spray. Pour in egg mixture to a 12 x 20 x 2-inch counter pan. Steam the eggs for 3–5 minutes at 5 pounds of pressure until desired consistency. Stir once during cooking.
   c. To cook in a conventional oven, lightly coat pan with vegetable spray. Pour egg mixture into a 12 x 20 x 2-inch steam table pan. Bake approximately 20 minutes at 350 °F, stirring once after 10 minutes of baking.
5. Scrambled eggs should be slightly undercooked because some cooking continues on the serving line. Serve immediately. Scrambled eggs should be held on the steam table at 135 °F or higher. When moisture accumulates around scrambled eggs (weeping), it is an indication that the eggs are overcooked and should not be served.

**DO:** Show video clip from *Culinary Techniques: Scrambled Eggs.*

**DO:** Discuss the Quality Score Card for Eggs in the Participant’s Workbook.

**SAY:** Before any food is placed on the serving line, it should be evaluated using the Quality Score Card. The quality standards described 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, the following must be done:

1. Substitute another meat or meat alternate on the serving line. Follow the school district procedure for menu substitutions.
2. Use the product another way, if possible, in order to avoid wasting the food. This decision 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.

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

Optional Activity: Culinary Application and Practice Activity

**NOTE TO INSTRUCTOR:** *Items needed for this activity are not included in Instructor’s Manual.*

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing eggs. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the *Culinary Techniques: Preparing Eggs* lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Eggs. 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. Each culinary technique summary includes a list of the USDA recipes that include that technique. Review the steps of the culinary techniques:
   - Culinary Technique: Hard Cooking Eggs in a Steamer
   - Culinary Technique: Preparing Scrambled Eggs

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card.
Preparing Sauces

Time: 1 hour
# Lesson-at-a-Glance

**60 minutes**

<table>
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<tr>
<th><strong>Topic</strong></th>
<th><strong>Task</strong></th>
</tr>
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<tbody>
<tr>
<td><strong>Objective 1: Improve the quality of sauces served with food items.</strong></td>
<td>Review culinary terms with participants.</td>
</tr>
<tr>
<td><strong>Culinary terms</strong></td>
<td>Discuss preparing white stock. Review purchasing suggestions for commercial bases. Review purchasing recommendations. Compare sodium content of commercial sauces versus scratch preparation of USDA Tomato Sauce recipe.</td>
</tr>
<tr>
<td><strong>Stock</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Objective 2: Improve the appeal of sauces served.</strong></td>
<td>Discuss benefits of sauces. Review basic principles of preparing sauces. Discuss preparation methods to improve healthfulness of sauces. Review and discuss the three ingredients found in a sauce.</td>
</tr>
<tr>
<td><strong>Sauces</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fruit or vegetable coulis</strong></td>
<td>Discuss health benefits of coulis. Review preparation steps of coulis.</td>
</tr>
<tr>
<td><strong>Objective 3: Improve the healthfulness of sauces served.</strong></td>
<td>Discuss making a roux. Review steps using USDA Pasta Salad recipe.</td>
</tr>
<tr>
<td><strong>Roux</strong></td>
<td>Show video clip from <em>Culinary Techniques: Making a Roux</em>.</td>
</tr>
<tr>
<td><strong>Slurry</strong></td>
<td>Discuss making a slurry. Show video clip from <em>Culinary Techniques: Making a Slurry</em>.</td>
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<tr>
<td><strong>Vegetable Sauces</strong></td>
<td>Demonstrate making a slurry. Discuss making a vegetable sauces. Show video clip from <em>Culinary Techniques: Vegetable Sauces</em>.</td>
</tr>
<tr>
<td><strong>Salsa</strong></td>
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**Preparation Checklist**

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<td>Label from can of tomato sauce</td>
<td></td>
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<tr>
<td>Label from can of low sodium tomato sauce</td>
<td></td>
</tr>
<tr>
<td>China cap</td>
<td></td>
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<tr>
<td>Clear measuring cup (2 cup)</td>
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<tr>
<td>Cornstarch</td>
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**Make copies of Participant’s Workbook**
Prepared Sauces

Instructor's Script

SAY: Welcome to the preparing sauces section of the Culinary Techniques training. In this lesson, we will cover the following objectives:

1. Improve the quality of sauces served with food items.
2. Improve the appeal of sauces served.
3. Improve the healthfulness of sauces served.

SAY: We would like you to understand the main ideas in this lesson, including:

- Sauces are flavorful liquids used to enhance the taste and appearance of other foods.
- There are three basic kinds of ingredients in most sauces: a liquid, a thickening agent, and other flavoring and seasonings.
- The quality of the liquid base determines the quality of the sauce.

DO: Refer to the important terms related to this lesson found in the Participant’s Workbook.

- **Coulis (coolee):** A French term used to describe sauces made from pureed vegetables or fruits. A vegetable coulis is usually cooked, then pureed. A fruit coulis can be made with an uncooked fruit or it may be cooked.
- **Culinary:** Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
- **Culinary Technique:** A step-by-step food preparation method.
- **Degreasing:** Removing the fat from chilled stock.
- **Just-In-Time Preparation:** Preparing a menu item in small enough amounts 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.
- **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.
- **Reduction:** A process that removes some or all of the water in a liquid, which not only thickens it but also concentrates the liquid’s flavor. A reduction sauce is a sauce thickened by boiling down the liquid to obtain a thicker consistency and a more concentrated flavor. Barbecue sauce is an example.
- **Roux (roo):** Flour and fat cooked together and used as a thickener. There are three types of roux, differing according to the length of time they are cooked: white, blonde, and brown.
- **Slurry:** A thickener made with a starch and cold water. The starch may be flour (white or browned), cornstarch, arrowroot, or rice flour.
- **Stock:** A flavorful liquid prepared by simmering meat, poultry, fish carcasses or bones, and/or vegetables in water until the flavor is extracted.
• **Straining:** Pouring stock or sauce through a very fine sieve or strainer to produce a smoother sauce. This procedure is used to separate all solids, bones, and vegetables from the liquid and to solve the problem of a lumpy sauce. Stocks should always be strained in this way.

**DO:** Refer participants to How to Make Stock handout in the Participant’s Workbook.

**SAY:** There are some important things to do when making a stock. Begin with a stock recipe. The ideal time to make a stock is when whole turkeys or other whole meats are on the menu. The meat is removed and the bones are cooked with vegetables and seasonings to make a stock.

**SAY:** The basic recipe for making 1 gallon of white stock using chicken or turkey starts with approximately 8 pounds of bones, 8 ounces chopped onions, 4 ounces chopped celery, and 4 ounces chopped carrots. Cover with 6 quarts of cold water. Do not add salt to the stock. Bring the raw bones and liquid to a boil and reduce the heat so the liquid is simmered (do not boil). After about 1 hour, add the vegetables and cook until the liquid is reduced by one-third. This will take about 3 hours. Skim the stock as needed during the cooking time. After the stock is ready, it should be strained to separate all the solids, bones, and vegetables from the liquid.

**NOTE TO INSTRUCTOR:** Simmering temperature is between 185 °F and 205 °F.

**SAY:** Remove the stock from the heat. Using a ladle, carefully ladle the stock from the pot and strain it through a very fine strainer. The strainer should be fine enough that no solids are strained through and the liquid is clear. Use the best tool available for straining stock. Some tools that can be used include a fine mesh-type strainer, a small hand-held colander, a china cap, cheesecloth, or a large coffee filter in a colander.

**DEMO:** Show participants what a china cap looks like. Explain that strainers come in differing sieve sizes depending on size of food particles to be removed.

**SAY:** After the stock has been strained, cool it quickly in shallow pans in the refrigerator or place in an ice water bath. Stir the stock periodically during the cooling process. When the stock is completely chilled (41 °F or less), remove any fat that is on the top.

**SAY:** Stock is a clear, flavored liquid that freezes well. Chilled stock can be frozen in one gallon amounts to be used for sauces. However, once a stock has been used to make a sauce, the sauce itself should not be frozen. Sauces do not freeze well and should be made in amounts needed the day of production.

**SAY:** Start your stock in cold water. By starting with cold water the entire mixture heats at the same time. The impurities from the bones collect on top of the water and can easily be skimmed off. If hot water is added to the bones, the impurities will coagulate and stay in the water making the stock cloudy. Simmering provides the time and temperature required for the bones to release their flavor into the liquid.
ASK: Does anyone remember the temperature range of simmering?

FEEDBACK (Answers may include): Simmering is cooking just below the boiling point, approximately 185 °F to 205 °F. When a stock is boiled, the impurities and the fat mix in with the water and the stock becomes cloudy.

SAY: Next, skim the stock. A good stock is clear. Skimming frequently during cooking will remove impurities and fat that rise to the top so the stock remains clear.

SAY: Broths made from commercial chicken stock base, beef stock base, and vegetable stock base are all popular substitutes for scratch-made stock. Although they save labor costs, a commercial stock base never gives as good of a flavor as a scratch-made stock. Regular commercial stock bases are high in sodium and for that reason their use should be limited in school kitchens. It is always important to choose ingredients that are consistent with the principles of the Dietary Guidelines for Americans. Substitute a low sodium commercial stock base for a regular commercial stock base when ever possible.

If you are using commercial stock bases, consider the following:
1. Reduce the amount of regular commercial stock base and use only half to three-quarters as much as recommended in the directions. Use the amount of water recommended. If low sodium stock base is available, follow the directions and use it full strength.
2. Make the sauce using water as the liquid. Then at the end add only enough stock base to get the flavor needed. Begin with half the amount recommended. Add the stock base and then taste test for flavor. Use the least amount of regular stock base needed for flavor.
3. Do not add additional salt or use flavorings such as onion salt or garlic salt.

SAY: Sauces are flavorful liquids that are used to enhance the taste and appearance of other foods. They are usually thickened. Although many traditional sauces are high in fat, today’s culinary professional uses new techniques to make delicious sauces with less fat and less salt (sodium). Sauces can be added to main dishes, to vegetables, to fruits, and even to desserts. There are many recipes for different sauces; some are cooked and some are uncooked.

SAY: To control the nutritional content of sauces consider reducing the fat in some sauces by replacing a roux thickener with slurry and using more fruit and vegetable based sauces.

SAY: To prepare healthy school meals, you need to purchase healthy school foods. For example:
- Purchase polyunsaturated and/or monounsaturated oils, such as canola, corn, cottonseed, olive, peanut, safflower, soybeans, or sunflower oils.
- Replace higher fat dairy products with low-fat dairy products.
- Purchase low sodium stocks or bases.
DEM0: Give a participant a label from a can of tomato sauce; give another participant label from a can of low sodium tomato sauce. Ask participants to read aloud the serving size and amount of sodium in each type of sauce.

NOTE TO INSTRUCTOR: After participants have shared the sodium information, hold up the USDA Tomato Sauce recipe (G-07) found in the Participant’s Workbook, and read the sodium content to participants (37 mg per 1 oz. serving). Calculate the amount of sodium in a serving size as stated on the canned tomato sauce. Compare the sodium content of all three sauces.

SAY: Sauces are an important part of the school menu because they can be used to enhance convenience items such as a chicken patty; adding moistness, flavor, richness, eye appeal, and taste appeal. Knowing how to make a sauce is one of the most basic but important culinary skills. Some sauces are high in fat and should be used in moderation. Some examples of sauces that are high in fat include white sauce, cream sauce, hollandaise sauce, some gravies, and tartar sauce. Some sauces are naturally low in fat, such as salsa, tomato sauce, barbecue sauce, and fruit sauces. These sauces can be used to enhance the appeal and nutrient content of foods served to students. Traditional sauces and gravies can now be made with a reduced amount of fat using updated recipes and new culinary techniques.

SAY: The amount of sauce served varies with the purpose of the sauce. Sometimes a sauce is part of the dish and is used to bind ingredients together. A white sauce is often used this way. When tomato sauce or pasta sauce is served over spaghetti, the recipe will provide the information on the specific serving size. Portion control of higher fat sauces or gravies keeps calories and fat grams under control. Because the portion sizes of meal components affect whether a school lunch is reimbursable, follow the recipe for the correct portion size for every food served, including sauces.

SAY: Let's discuss the basic principles of preparing sauces. The variety of sauces is limited only by the imagination of school nutrition professionals. Chefs consider that sauces demonstrate the chef’s highest skills. Some sauces are considered classics while others represent newer creations that fit today’s lighter tastes. In schools, sauces are not used as often as in fine restaurants, but when they are used, their presentation and taste are just as important.

SAY: A sauce used in school menus generally must be prepared in quantity and must be suitable for the food it is served with. The recipe for a menu item will usually suggest the right sauce and may include the recipe for it. Sauces are appealing ways to create variety in pastas and convenience main dish items. Sauces have a number of purposes, including adding flavors, adding moisture, adding visual interest, enhancing flavors, and adjusting texture.

SAY: The three basic ingredients in most sauces are:
1. the liquid used to prepare the sauce
2. the thickening agent
3. other flavorings and seasonings
Preparing Sauces

**SAY:** The liquid base for a sauce may vary. The most popular liquids are stock, milk, or juice. The quality of the liquid base determines the quality of the sauce. Ideally, when stock is the liquid, it is made from scratch. The most important reason for making stock from scratch is to have a high quality product and control the ingredients, mainly the salt. When scratch-made stock is not available, commercial stock base can be used. Regular flavored stock bases are usually very high in salt. If a commercial stock base is used, use the low sodium type to reduce the salt in the sauce or gravy.

**SAY:** Milk is another liquid that is often used in sauces. Use low-fat or nonfat milk whenever milk is used as a preparation ingredient. This simple substitution in all school recipes goes a long way to reduce the fat in school meals. Substitute the same amount of non-fat or low-fat milk for the amount of whole milk in the recipe. Non-fat dry milk can be substituted for liquid milk in a recipe.

**ASK:** What are some ways to reduce the fat in recipes using low-fat milk products?

**FEEDBACK (Answers may include):**
- Any low-fat milk can be substituted for whole milk in a recipe. Reduced fat sour cream can be substituted for regular sour cream that has 20% fat. When sour cream is added to a cooked sauce, it should be added toward the end of cooking.
- To substitute plain yogurt for sour cream, blend 1 tablespoon of cornstarch into each 1 quart of yogurt. Mix well with a wire whisk.
- Plain yogurt can easily be substituted for sour cream in an uncooked recipe. In a cooked recipe, the yogurt should be added at the end of the cooking process. The amount of fat may vary from 3.5% to fat-free. With much less fat, the yogurt will react in a cooked food differently from sour cream. Yogurt will add more moisture than an equal amount of sour cream.

**SAY:** Some sauce recipes call for a juice to be used as the liquid. This is especially true in dessert sauces, such as the USDA recipe for Spiced Apple Topping (G-09) that includes apple juice. In a starch-based sauce, adding a juice has to be done very carefully because acid breaks down starches. Recipes containing juice usually have a little more starch in them to take care of the effect of the acid in the juice. Acid products, such as fruit juices or tomatoes, are added to a starch-based sauce at the end of cooking.

**SAY:** Sauces are thickened with a starchy product like flour, cornstarch, arrowroot, bread crumbs, potato starch (or instant potatoes), or rice flour. Some commercial products use other kinds of starches for thickening. The thickening agent has an effect on the appearance of the sauce. For example, a sauce or gravy thickened with flour has an opaque appearance. When cornstarch is used, the sauce or gravy has a clear look.

**ASK:** Who would like to describe an opaque appearance of a sauce?

**FEEDBACK (Answers may include):** Cloudy, milky, muddy, etc.
SAY: Flour used for thickening may be raw or browned. When the flour is browned it has less thickening power, so the amount should be increased for the same amount of liquid. Flour can be browned in the oven on a sheet pan at 350 °F for 10–15 minutes depending on the depth of color desired. It should be stirred occasionally and watched closely. Once it begins to brown it can quickly burn. Browned flour can be stored airtight in the refrigerator until needed to make a roux or slurry.

SAY: Starches vary in how much liquid they will thicken. For example, one unit of cornstarch will thicken the same amount of liquid as two units of flour. The thickness of a sauce can be changed by changing the amount of a specific thickener used.

NOTE TO INSTRUCTOR: Explain that 1 tablespoon of cornstarch will thicken the amount of liquid that it takes 2 tablespoons of flour to thicken. Further, cornstarch is gluten free.

SAY: Thickening with a starch happens when the starch particles absorb water and swell in size. This happens during the cooking process and continues while the sauce cools. The continued thickening while cooling explains why the sauce in a pan of cold food is very thick. Sometimes a sauce becomes so thick when it is cold that it pushes out some of the water and the mixture weeps. Weeping is not desirable and is very unattractive to customers. Sauces should be removed from the serving line when this happens.

SAY: Starchy products like flour or cornstarch have a tendency to become lumpy when handled incorrectly. If the starch is added directly to a hot liquid, the outside particles cook and the inside becomes a lump. Most all cooks have seen a lumpy sauce or gravy. To keep the starchy product from lumping together, another ingredient must be added to separate the particles of starch before the starch is cooked. This can be fat, sugar, or a cold liquid like water or juice. Sauce and gravy recipes include an ingredient that is used to separate the particles of starch.

SAY: There are three ways to separate starch particles:

1. Separating starch particles with fat (how to make a roux) – A roux is a cooked mixture of flour and fat. It is used to thicken gravy, white sauce, and cream soups. Some dishes require a roux that has been cooked just enough to cook the starch so the mixture remains white or blond. Other recipes require a roux that has been cooked until it becomes brown or caramel color. The browning changes the flavor. A brown roux is used to thicken stews, gravies, and ethnic dishes like Cajun gumbo.

2. Separating starch particles with sugar – Some sauces include sugar and starch with other ingredients to keep the starch particles from lumping together. This culinary technique is used to make puddings and many kinds of dessert sauces.

3. Separating starch particles with a cold liquid (how to make a slurry) – Another way to separate the starch particles to prevent lumping is to make a paste of starch and water, called a slurry. The slurry is then added to a hot liquid. The starch can be plain flour, browned flour, corn starch, or another starch.
Preparing Sauces

SAY: When plain white flour (raw flour) is mixed with cold water, cooks sometimes refer to it as a whitewash. This thickening agent does not have the rich flavor of a roux, but neither does it have the fat. Recipes that have been modified to reduce the fat often use a slurry for thickening the sauce. A slurry is useful for making sauces or cooked salad dressings and for thickening a recipe mixture that is too thin. A slurry made with browned flour can be used as a substitute for a browned roux to make gravy or to thicken a dish like Cajun gumbo. This way of thickening avoids the fat in a roux and adds flavor. If sweet and sour pork is leftover and is to be reheated the next day, the sauce may be too thin and watery. A slurry of cornstarch and cold water can be added to the thin mixture. On reheating, it is thickened appropriately and ready to serve.

SAY: Sauces or gravies will also have some type of seasonings and flavorings. These ingredients are different depending on the kind of sauce and the accompanying menu item. Recipes have been developed so that the seasonings are in exactly the right amounts for the best flavor. Measure the seasonings carefully and add them to the sauce mixture according to recipe directions. Salt is a seasoning that may be included in a recipe. Omit the salt if the recipe is being made with a commercial stock base instead of scratch-made stock. Remember, most commercial stock bases already have a large amount of salt, so more is not needed. Soy sauce is a seasoning sometimes added to sauces. This sauce is already high in salt, so do not add more. Reduced sodium soy sauce is also available. Avoid using flavored salts for seasoning. Use garlic powder and onion powder instead of the salt variety.

SAY: Today's health conscious customers expect school nutrition professionals to use new culinary techniques for lower fat menu choices. One of the newest types of sauces is fruit or vegetable coulis. A coulis is a sauce thickened with pureed fruits or vegetables. Pureed fruits and vegetables do not have the same properties as starch but they will thicken a sauce while adding both flavor and nutrients. This type of sauce can be a healthy alternative to more traditional sauces since it contains little fat and provides the nutrients from the main vegetable or fruit ingredient.

SAY: A coulis can be cooked or uncooked. A vegetable coulis is made with a single vegetable base such as broccoli, cooked with flavoring ingredients such as onions, garlic, herbs, and spices. Then the whole mixture is pureed. Stock can be used to thin the puree. A broccoli or spinach coulis would be a healthy and different sauce to be served with grilled or baked chicken breasts or chicken strips.

SAY: Tomato sauce is a type of vegetable coulis and part of many favorite menu items today. Scratch-made tomato sauce is ideal because the ingredients can be controlled. Salt is an important ingredient. All regular canned tomato products are made with added salt. For this reason, salt does not need to be added to the recipe. In fact, the USDA recipe for Tomato Sauce (G-07) does not include salt. With the many other seasonings added, salt is not necessary for flavor.

ASK: How is the USDA recipe for tomato sauce thickened?
FEEDBACK (Answers may include): Thickeners are not added to tomato sauce because it is thickened by evaporating some of the liquid while cooking.

SAY: Fruit coulis is often made with fresh or frozen berries like strawberries or other fruits. A dessert sauce, such as strawberry coulis, would be an ideal sauce to serve with a cake for a healthy, low-fat dessert. Fruit coulis can be served as an accompaniment to a meat item like chicken tenders.

DO: Refer participants to the preparation of Apricot Coulis recipe handout in their workbooks.

DO: Refer participants to the handout, USDA Chicken Tetrazzini recipe (D-42) in the participant’s workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: Let’s discuss the steps for making a roux: (Sauces or gravies thickened with a roux contain from 1–3 grams of fat per serving.)
1. Melt the fat.
2. Add the flour and stir until the flour and fat are combined.
3. Cook according to the color of roux required. The recipe will give an estimated time. A white roux should be cooked only long enough to cook the flour and avoid a pasty taste. A roux should be cooked at a moderate temperature. A brown roux should be cooked until the color is a brown to dark brown and the taste is nutty. Stir the roux continuously to avoid lumps and over or uneven browning.
4. Continue with the recipe or remove from heat and chill for later use.

DO: Show video clip from Culinary Techniques: Making a Roux.

SAY: Now let’s discuss the steps for making a slurry using cornstarch. Remember, flour may also be used. Browned flour can be used to make a fat-free gravy or for use in thickening dishes such as stews or gumbo. Sauces or gravies thickened with a slurry have little or no fat. This is an excellent way to reduce the fat in a school menu.

DEMO: Blend cornstarch with a small amount of cold liquid and whisk. Show participants.

SAY: Stir or whisk to completely dissolve the starch. To add to a hot liquid, take a small amount of the hot liquid to be thickened and blend it into the slurry. Add the slurry mixture to the hot liquid.

DO: Show video clip from Culinary Techniques: Making a Slurry.

SAY: We’ve already discussed a fruit coulis, but you can also make a coulis from vegetables. Start by sweating or sautéing aromatic vegetables (onions) in a small amount of oil. Add the main ingredient and any additional flavoring ingredients with an appropriate liquid, if necessary. Simmer to develop the flavor and cook the vegetable or fruit. Finally, puree the sauce using a food
Preparing Sauces

mill, blender, food processor, or an immersion blender, if desired. Serve immediately, or chill and refrigerate.

DO: Show video clip from Culinary Techniques: Vegetable Sauces.

DO: Show video clip from Culinary Techniques: Salsas.

DO: Review Quality Score Card for sauces in the Participant’s Workbook.

Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in Instructor’s Manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing sauces. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Sauces lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Sauces. 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: Making a Roux
   • Culinary Technique: Making a Slurry
   • Culinary Technique: Pureed Vegetables or Fruit Sauce

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card for Sauces.
Instructor’s Manual

Preparing Cakes, Cookies, and Pastry

Time: 1 hour
# Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
</table>
| **Objective 1: Improve the nutritional content of cakes, cookies, and pastry served to students.** | **Culinary terms**  
Review culinary terms with participants.  
**Dairy products**  
Introduce dairy products.  
Review Commonly Used Dairy Products chart.  
Discuss ways for reducing fats.  
Demonstrate fat/flour mixture for pie crust. |
| **Objective 2: Improve the variety of cakes, cookies, and pastry served to students.** | **Menu planning**  
Discuss menu planning recommendations.  
Discuss purchasing recommendations. |
| **Objective 3: Improve the quality of cakes, cookies, and pastries served to students.** | **Culinary techniques**  
Introduce culinary techniques for preparing cakes and cookies.  
Discuss the purpose of ingredients in baked goods.  
Discuss hydrogenated shortening.  
Allow participants to smell (optional: taste) vanilla extract.  
Demonstrate how to remove vanilla beans from the bean pod. |
| **Objective 4: Improve the appeal of cakes, cookies, and pastry served to students.** | **Preparing cakes**  
Introduce types of cake batter.  
Review cake preparation.  
Discuss handout *What Happened to the Cake?*  
**Preparing cookies**  
Review cookie preparation.  
Discuss handout *What Happened to the Cookie?*  
**Preparing pies**  
Review pie preparation.  
Discuss handout *What Happened to the Pie?*  
**Creaming method**  
Review and discuss creaming method or conventional method for cakes and cookies.  
**Panning**  
Discuss panning - Place a baking pan on a scale and demonstrate how to set the scale to zero prior to weighing batter.  
**Creaming method**  
Show video clip from *Culinary Techniques: Preparing Cookies.* |
<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blending method</td>
<td>Review and discuss blending method for cakes. Discuss the flat paddle, whip, and dough hook.</td>
</tr>
<tr>
<td>Blending method</td>
<td>Show video clip from <em>Culinary Techniques: Cakes.</em></td>
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<tr>
<td>Pastry dough</td>
<td>Review pastry dough preparation</td>
</tr>
<tr>
<td>Pastry dough</td>
<td>Show video clip from <em>Culinary Techniques: Pastry Dough.</em></td>
</tr>
<tr>
<td>Quality Score Card</td>
<td>Review and discuss Quality Score Card for Cakes, Cookies, and Pastry.</td>
</tr>
</tbody>
</table>
# Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
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<tbody>
<tr>
<td>Reserve equipment and gather lab supplies</td>
<td></td>
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<tr>
<td><strong>Materials needed:</strong></td>
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<tr>
<td>4 Tbsp butter or margarine</td>
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<tr>
<td>1 cup dry measure cup</td>
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<tr>
<td>1 cup Flour</td>
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<tr>
<td>Small mixing bowl</td>
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<tr>
<td>Scale</td>
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<tr>
<td>Small bottle of vegetable oil-For display</td>
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<tr>
<td>Small container of hydrogenated shortening-For display</td>
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<tr>
<td>Vanilla extract - small bottle</td>
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<tr>
<td>Chef’s knife</td>
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<tr>
<td>Cake pan</td>
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<tr>
<td>Water - to fill cake pan</td>
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<tr>
<td>Flat paddle</td>
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<tr>
<td>Dough hook</td>
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<tr>
<td>Whip - for mixer</td>
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<tr>
<td>TV/DVD combo on cart</td>
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<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
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<tr>
<td>Nametags, optional</td>
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<tr>
<td>Make copies of Participant’s Workbook</td>
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</table>
Instructor’s Script

SAY: Welcome to the preparing cakes, cookies, and pastry section of the Culinary Techniques training. In this lesson, we will cover the following objectives:

1. Improve the nutrition content of cakes, cookies, and pastry served to students.
2. Improve the variety of cakes, cookies, and pastry served to students.
3. Improve the quality of cakes, cookies, and pastry served to students.
4. Improve the appeal, cookies, and pastry served to students.

SAY: We would like you to understand the main ideas in this lesson, including:

• Many cake and cookie recipes have been modified to reduce the fat.
• The ingredients in a cake, cookie, or pastry recipe have been carefully balanced to result in a quality product.
• The conventional method is the culinary technique used for cakes and cookies that have a larger amount of fat, like pound cake, brownies, or bar cookies. However, some reduced fat cake recipes also use this method.
• The blending method is the culinary technique used for mixing cakes in which the weight of the sugar is equal to or greater than the weight of the flour. Some examples of cakes made with this culinary technique are yellow cake, carrot cake, and gingerbread.

DO: Refer to the important terms related to this lesson.

• Blend: To thoroughly mix two or more ingredients.
• Conventional Oven: An electric or gas oven arranged either as decks or under a range top.
• Convection Oven: An oven that has a fan that constantly circulates heated air across the food. This convection action increases the heat absorption process, shortens required cooking time, and reduces shrinkage of food.
• Culinary: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• Fold: To combine by using two motions, cutting vertically through the mixture and turning the mixture over and over.
• Just-In-Time Preparation: Preparing a menu item in small enough amounts 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 period of time. Other terms that mean the same thing are batch cooking and cooking to the line.
• Leavening Agent: An ingredient that makes a product light and porous. Leavening agents include yeast, baking powder, baking soda, eggs, egg whites, air, and steam.
• Mise en Place (meez-un-plahss): A French term used by chefs and other culinary 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.
• **Nutrients:** The substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.

**SAY:** Dairy products in baked goods can be used as a liquid ingredient or as a fat. They provide batters with moisture, tenderizing ability, and increased nutrients. Dairy products are also used in icings and fillings.

**DO:** Discuss chart on Commonly Used Dairy Products found in the Participant’s Workbook.

**NOTE TO INSTRUCTOR:** Share with participants how simple it is to reduce the fat in most baked goods, icings, or fillings that call for milk. Instead of using whole milk that has 3.25% fat, use reduced-fat or low-fat milk.

**SAY:** Some commonly used spices in cakes, cookies, and pies include allspice, cinnamon, clove, ginger, nutmeg, and vanilla.

**NOTE TO INSTRUCTOR:** Allspice is also called Jamaican pepper. It is the dried berry of a tree that grows in Central America. It got its name because it reminded people of the flavor and aroma of cinnamon, nutmeg, and cloves.

**SAY:** Menu planning practices should be focused on creating healthy school meals. To control nutritional content when planning healthy school menus consider reducing the fat in some baked goods by replacing up to half the fat with fruit or bean purees. When preparing scratch-baked cakes, cookies, and pies, replace most of the white flour with whole wheat flour. Begin slowly by replacing one-third of the white flour with whole wheat flour and gradually increasing until the whole wheat part is equal to or greater than 50%. Serve baked goods with fruit filling or fruit sauce.

**SAY:** Baked goods should have some amount of fat. The minimum amount of fat needed in cakes and soft drop cookies is 2 tablespoons fat per 1 cup flour. For pie crust you need 4 tablespoons fat per 1 cup flour.

**DEMO:** Combine 4 tablespoons of butter and 1 cup flour. Using your fingers, mix well. Allow participants to feel the fat/flour mixture.

**SAY:** To prepare healthy school meals, you need to purchase healthy school foods. For example:

- Purchase polyunsaturated and/or monounsaturated oils, such as canola, corn, cottonseed, olive, peanut, safflower, soybeans, or sunflower oils.
- Lard should not be purchased.
- Avoid hydrogenated oils/fats which may contain trans-fats.
- Replace higher fat dairy products with low-fat dairy products.
- Use non-stick cooking sprays on baking pans.
SAY: Cakes, cookies, and pies are classic dessert items popular with every age group, including students. Although some cake and cookie recipes are high in fat, like an old-fashioned pound cake, many new cake recipes have been modified to reduce the fat. Cakes and other desserts should be served as an occasional treat for students, not added to every menu because of the fat and sugar they contain. Cakes, cookies, and pies, like most other baked desserts, are classified as discretionary calories because they too, include both fat and sugar.

ASK: How often are cakes, cookies, or pies on your school menus?

DO: Allow participants to share answers.

FEEDBACK: Moderation is the key. Cakes, cookies, and pies may be added to some school menus to increase the calories to meet students’ needs for energy.

SAY: The nutritional value of traditional cakes, cookies, and pies can be enhanced by serving them with fruit toppings, fruit garnishes, or fruit added to the cake batter. These more nutritious toppings and additions can take the place of the traditional cake icing. Look for new cake recipes where some of the fat has been replaced by a fruit puree. Also consider using cake, cookie, and pie recipes that include added fruit, either fresh or dried.

SAY: One of the important jobs of a school menu is to help students learn to choose foods wisely. By offering desserts sometimes, but not every day, students can learn that desserts are fine to eat, but in moderation. When cakes, cookies, pies, and other desserts are on the menu, follow the recipe carefully so the product will be the best quality. A special treat should really be special. Portion control is a very important part of serving quality cakes, cookies, and pies. Cost control and customer satisfaction must be considered. Equal portions cut according to the yield of the recipe should be standard procedure.

SAY: A culinary technique is a step-by-step way to prepare a quality food product. There are several different culinary techniques for preparing cakes and cookies. The right one to use depends on the kind of cake or cookie. The recipe for a cake or cookie describes the step-by-step culinary technique that should be used. Knowing some basic culinary techniques helps a professional cook understand why the steps of a cake recipe are important to follow in order to produce a quality cake. Remember, cookies are basically small cakes, so the mixing methods for preparing cookies and cakes are similar.

SAY: The culinary technique or the mixing method that is right for a cake or cookie is based on a specific balance of ingredients, combined in a certain way. Each ingredient is included in a recipe to do a special job. When combining the ingredients using the correct culinary technique, it results in the ingredients working together in the right way.

ASK: In cake making, why do you cream the fat before adding liquid?
ANSWER: If fat is not adequately creamed prior to adding the liquid, it may cause the cake batter to curdle, or the cake to be flat.

NOTE TO INSTRUCTOR: Creaming is a mixing method in which softened fat and sugar are vigorously combined to incorporate air. Creaming is discussed later in the lesson.

SAY: To prepare a quality cake or cookie, you should begin with a good recipe and make only in quantities that can be baked immediately. Cake batter or cookie dough should not be left in pans waiting for an oven. Ingredients should be at the right temperature. Most cake recipes suggest that all ingredients should be at room temperature. Weigh or measure ingredients carefully and follow the recipe that includes the right culinary technique or mixing method. Weigh the right amount of cake batter for each pan, and then bake at the correct temperature for the right amount of time.

ASK: What happens if you do not put the right amount of cake batter in the pans?

FEEDBACK (Answers may include): Yield will not be consistent, batter could rise out of the pan and spill into oven, recipe cooking time will be unknown, product quality may be affected. Participants may have other answers. Consider all answers.

SAY: Well-balanced cake and cookie recipes have been tested many times to be sure they produce a quality product every time. Each ingredient has a certain job to do and has a special effect on the finished product. If one ingredient is changed, it can affect many other ingredients. The message to a cook is, follow the recipe exactly.

SAY: Knowing the job of each ingredient in a recipe can help a cook determine what happened when a product fails. Let’s discuss the purpose of ingredients in baked goods.

SAY: The first ingredient is flour. Most cakes and cookies have flour as a major ingredient. All-purpose flour or cake flour may be used in cakes. In some recipes up to half of the flour can be whole wheat flour. The purpose of flour in a cake or cookie recipe is to give structure, the same as in breads. Because cakes or cookie are much more delicate than breads, just a little too much or too little flour can make a big difference. Too much flour makes a cake or cookie tough and results in a coarse texture. Too little flour causes the cake to collapse or fall. Most schools use all-purpose flour and USDA recipes require all-purpose flour. However, cake flour can be used since it gives a more tender product with a finer crumb. Cakes made with cake flour have a better volume and finer texture than ones made with regular, all-purpose flour.

SAY: Because flour in a bin packs down, weighing flour is more accurate than measuring it. When flour has to be measured, because there is no scale, stir the flour well before it is measured. Never measure more than 1 quart of flour at a time. Scrape the top of the dry measure to level flour for more accurate measuring. To substitute all-purpose flour for cake flour, for each pound of all-purpose flour weighed, remove 1/2 cup.
DEMO: Demonstrate measuring one cup of flour using the above method. Place the one cup measure of flour on a scale and tell participants how much 1 measured cup of flour weighs.

SAY: The second ingredient is sugar. Sugar provides the sweet flavor and helps to make the cake tender. Also, sugar has an important effect on the structure of cakes and cookies. It is very important to follow the recipe for a cake or cookie because changing the amount of any ingredient, especially sugar, affects many other factors. Too little sugar can make a cake or cookie tough. Too much sugar causes the surface to be rough and brown too much and the cake will fall. Sugar should be weighed. The sugar crystals help to incorporate air when sugar is creamed with fat in some cake recipes.

SAY: The third ingredient is fat. Most cake and cookie recipes include some kind of fat. The fat may be margarine, butter, oil, or shortening. Fat in a cake or cookie has several important jobs. The most important job of a fat is to make the cake tender and soft. Fat also helps to improve the keeping qualities of a cake or cookie. Different fats change the texture and tenderness of a cake or cookie. For example, cakes and cookies made with butter are more tender and have a velvet-like crumb. Cakes and cookies made with hydrogenated shortening have a more even grain and will rise more than butter cakes or cookies. The hydrogenated shortening helps a cake to rise because it can trap more air bubbles in the batter or dough.

ASK: What is hydrogenated shortening?

FEEDBACK (Answers may include): Liquid fat, such as vegetable oil, is processed (hydrogenated) to create a solid fat. Hydrogen atoms are added to unsaturated fat molecules making them partially or completely saturated and thus solid at room temperature.

DEMO: Show participants a vegetable oil and a hydrogenated fat.

NOTE TO INSTRUCTOR: The process of hydrogenation creates trans-fats. Under the new school lunch and breakfast meal patterns, there is no longer a total fat requirement. Saturated fat must be less than 10% of calories, averaged over a school week. This is not a change from current National School Lunch Program (NSLP) requirements. There is, however, a new trans-fat requirement. School meals must contain zero grams of added trans-fat per portion. In order for schools to comply with this provision, menu planners must review the nutrition label or manufacturer specifications - these must indicate zero grams of trans-fat per serving. Naturally occurring trans-fat in meat and dairy are excluded from this requirement. More detailed information on how to determine the trans-fat levels of mixed dishes, containing both naturally-occurring and added (synthetic) can be found in the Trans-Fat section of FNS memorandum SP-10-2012.

Nutrition label or manufacturer specifications must indicate zero grams of trans-fat per serving. Manufacturers are allowed to label their products as containing “zero grams” if the product contains 0.5 grams or less, but the product label must state “zero grams” to be an allowable product.
Low-fat margarine, light margarine, whipped margarine, or whipped butter cannot be substituted for the fat in cake and cookie recipes because the amount of fat in the product has been reduced. They will not give a satisfactory product. Some cake and cookie recipes have reduced the amount of fat and substituted pureed fruit or beans for some of the fat. Applesauce can be used to substitute for some of the fat in a cake or cookie recipe. This can give an excellent product. Cakes and cookies with reduced amounts of fat or no fat should be served immediately after baking since they do not keep well. If the cake or cookies are baked ahead, cool, then wrap securely and freeze until needed. Try cake or cookie recipes that have fruits or yogurt to replace some of the fat. Prepare the cake or cookies in a 25-portion amount before it is placed on the menu. It can be served as a choice. Take the time to get feedback from students about their taste preferences.

The fourth ingredient is eggs. Eggs in a cake provide some moisture and help give the cake structure. The recipe may call for whole eggs or yolks or egg whites. When a recipe calls for whole shell eggs, USDA frozen eggs can be substituted.

- 5 pounds of frozen whole eggs = 45 large eggs
- 4 pounds of frozen whole eggs = 36 large eggs
- 3 tablespoons of frozen whole eggs = 1 large egg

**NOTE TO INSTRUCTOR:** For best quality, store frozen egg products up to one year at -10 °F to 0 °F. After thawing, do not refreeze. Thaw frozen egg products in the refrigerator or under cold running water. If the container for liquid products bears a “use-by” date, observe it. Follow the storage and handling instructions provided by the manufacturer. For liquid products without an expiration date, store unopened containers in the refrigerator at 41 °F or below for up to 7 days (not to exceed 3 days after opening carton). Do not freeze opened cartons of liquid egg products.

Frozen eggs should be thawed in the refrigerator. After thawing, the amount needed for the cake or cookies should be measured and then allowed to come to room temperature before adding to the other ingredients in the recipe. Remember, most cake and cookie recipes suggest that all ingredients should be at room temperature when the batter or dough is mixed.

The fifth ingredient is the liquid. Liquids in a recipe have the job of dissolving the sugar and salt. The liquid mixes with the baking powder in a recipe to produce a gas that helps the batter or dough rise. Eggs provide some liquid also. The liquid in a cake or cookie recipe may be milk, water, juice, or fruit with juice. Nonfat dry milk can be substituted for liquid milk in a recipe. Combine the dry milk with the dry ingredients and add the required amount of water called for in the recipe as “milk.” Some cake or cookie recipes call for sour cream.

To reduce the fat, what can be substituted for the sour cream?

**FEEDBACK (Answers may include):** Plain nonfat or low-fat yogurt can be substituted for the sour cream. Always use a low-fat or skim milk in place of whole milk to reduce the total fat.
**SAY:** Baking powder is the sixth ingredient. Baking powder causes a cake to rise because it produces a gas (carbon dioxide) when combined with a liquid and also when the batter is heated. Be careful to measure the exact amount called for in the recipe. Too much baking powder gives the cake a coarse texture and a gummy crumb, and can make the cake fall. Too little baking powder results in a heavy, compact cake. Be sure to check the expiration date of baking powder. If uncertain, add a small amount of water to some baking powder. If it doesn’t bubble, the baking powder may be inactive and should be discarded.

**SAY:** The final ingredient is flavorings. Cake and cookie recipes include a variety of flavorings. Some common flavorings are salt, vanilla, chocolate, spices, lemon extract, almond extract, butter flavoring, and many others. Although these flavorings are used only in small amounts, they have a big impact on flavor. Measure the flavorings accurately, according to the recipe. Some cake and cookie recipes call for nuts. Since nuts are high in fat, dried fruits, such as raisins or dates, can be substituted for nuts in the recipe. Substitute equal amounts.

**DEMO:** Allow participants to smell (optional: taste) vanilla extract.

**SAY:** There are two basic types of cake batters, butter or shortened cakes, and foam or sponge cakes. Butter or shortened cakes contain some kind of fat and they are usually leavened with either baking powder or baking soda and an acid, such as buttermilk or fruit juice. Foam cakes include sponge cakes, angel food cakes, and chiffon cakes. These cakes are leavened by the air in the egg foam. They contain little or no fat. Foam cakes cannot be prepared in quantities greater than 100 portions per batch because the batter is delicate.

**SAY:** Cake mixes are prepared using carefully tested formulas. Since these formulas are balanced, no changes should be made in the few ingredients that are added. For example, if the directions call for water to be added, do not add milk instead. Substituting ingredients or adding other ingredients will make the formula out of balance and can ruin the finished product. Follow the directions for a cake mix to get a good product.

**SAY:** Now let’s take a closer look at the proper steps to baking cakes. Be sure to have a timer when baking cakes. Cakes bake in four stages. In stage 1, the cake batter becomes slightly thinner and rises rapidly. Rising starts at the sides and moves in toward the center. In stage 2, the center of the cake begins to rise a little higher than the sides. The structure of the cake is beginning to form at this time. On the surface of the cake, some browning begins and small bubbles may appear. This is a very delicate stage and any jarring may cause the cake to fall or lose volume. When a convection oven is used, the fan should be turned off until the second stage of baking is complete. The amount of time for this will vary with different recipes from one-third to one-half of the total baking time.

**SAY:** In stage 3 the cake begins to get firm and the crust continues to brown. The fourth and final stage begins as the cake gets done, it begins to shrink slightly and pull away from the sides of the pan. When a cake is done, it should be firm to the touch and should spring back when touched not
leaving a fingerprint. When a wire tester or toothpick that is inserted in the center of the cake comes out clean, the cake is done.

**DO:** Show video clip from Culinary Techniques: Cakes.

**DO:** Discuss handout What Happened to the Cake? found in the Participant’s Workbook

**DO:** Refer participants to USDA Carrot Cake (C-05) recipe found in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**NOTE TO INSTRUCTOR:** State the cake problem, and then ask participants what could have caused it to happen.

**SAY:** Next, let’s discuss the proper steps to preparing cookies. There are four categories of cookies. The first is bar or sheet cookies made from a soft dough or batter, then baked in a half-sheet pan (50 servings) or a full sheet pan (100 servings). Scooped or dropped cookies are made from soft dough, shaped and baked at 325 °F to 350 °F as soon as the dough is mixed. Use the appropriate scoop. For example, use a number 40 scoop to make a medium-sized, 2 1/2–3 inch cookie, weighing about 3/4 ounce; a number 20, 24, or 30 scoop can be used for larger cookies. Allow room for expanding because these cookies typically spread during baking.

**SAY:** To make molded or refrigerated cookies, prepare stiff dough and roll into logs or balls. Finally, rolled cookies are made using stiff dough, and then rolled on a lightly floured surface. Some tips for preparing cookies include, removing from sheet pans using an offset spatula while cookies are still slightly warm, do not over bake cookies, and cool cookies on a rack.

**DO:** Show video clip from Culinary Techniques: Cookies.

**DO:** Discuss handout What Happened to the Cookie? found in the Participant’s Workbook.

**DO:** Refer participants to the New Oatmeal Raisin Cookie (C-25) recipe found in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**NOTE TO INSTRUCTOR:** State the cookie problem, and then ask participants what could have caused it to happen.

**SAY:** Another popular dessert is pies. A good pie has a tender, flakey crust that can top a variety of fillings. Pies can be sweet and served as a dessert. Filled with various fruits, pies are a favorite way to add more fruit to your menus. Pies can be savory, meat-filled or vegetarian. The basic pie dough ratios of ingredients are:

- 3 parts flour
- 2 parts fat
- 1 part water (by weight)
Preparation of cakes, cookies, and pastry:

**SAY:** Some tips for a tender, flaky pie crust include:
- using a solid, cold fat,
- using a low-protein flour,
- adding an acid,
- avoiding using too much water,
- avoid over mixing, and
- allow the dough to rest.

**DO:** Show video clip from *Culinary Techniques: Pastry Dough.*

**DO:** Discuss handout *What Happened to the Pie?* found in the Participant’s Workbook.

**DO:** Refer participants to the Basic Principles of Preparing Pies Recipe.

*NOTE TO INSTRUCTOR:* State the pie problem, and then ask participants what could have caused it to happen.

**SAY:** The creaming method or conventional method is the culinary technique usually used for cakes and cookies that have a larger amount of fat. Products mixed by this method include pound cakes, coffee cakes, brownies and bars, and some cookies. First, have all ingredients at room temperature. Scale the ingredients by weighing the dry ingredients and measuring the liquid ingredients. Mix all the dry ingredients together with the exception of the sugar.

**ASK:** Why is the sugar not added to the dry ingredients?

**FEEDBACK** *(Answers may include)*: Sugar is used to cream the fat to create air bubbles.

*NOTE TO INSTRUCTOR:* Sugar is sometimes referred to as a wet ingredient because it is not added to the dry ingredients.

**SAY:** Next, prepare the pans. Vegetable oil spray (food release) can be used. Pans may be greased and floured or lined with parchment paper. Do not use oil as it will cause the cookies to stick. Place the butter or shortening in the mixing bowl. Beat slowly with the paddle attachment until the fat is smooth and creamy. Add all of the sugar and beat until light and fluffy. Turn off the mixer and scrape down the sides.

*NOTE TO INSTRUCTOR:* Fat and sugar may need to be creamed for 4 to 5 minutes.

**SAY:** Add the eggs in several parts, beating well after each addition. Beat this mixture until light and fluffy. Turn off the mixer and scrape down the sides. Add the mixed dry ingredients alternately with the liquid to the creamed mixture. Always end with dry ingredients. Follow the recipe to determine when to add flavorings or other ingredients.
Another method for preparing cakes is called blending. The blending method is a culinary technique used for mixing cakes when the weight of the sugar is equal to or greater than the weight of the flour. This method is used for layer cakes, gingerbread, and many other cakes made in quantity.

**NOTE TO INSTRUCTOR:** The blending method may also be called the two-stage method.

First, have all ingredients at room temperature. Scale the ingredients by weighing the dry ingredients and measuring the liquid ingredients. Next, prepare the pans. Vegetable oil spray (food release) can be used. Pans may be greased and floured or lined with parchment paper. Do not use oil as it will cause the cake to stick. Using the flat paddle, blend the dry ingredients in a mixing bowl and mix on low speed for 1 minute. Blend the liquid ingredients in a separate bowl. Follow the recipe for the specific ingredients to be blended at this step. Most recipes have the oil or shortening mixed with the liquid ingredients.

**DEMO:** Show participants the flat paddle.

**ASK:** What is the purpose of the flat paddle?

**FEEDBACK (Answers may include):** General mixing

**DEMO:** Show participants the whip attachment.

**ASK:** What is the purpose of the whip?

**FEEDBACK (Answers may include):** Whipping air into products like cream or eggs.

**DEMO:** Place a baking pan on a scale and demonstrate how to tare the scale to zero prior to weighing batter. Use water to fill the pan. Tell participants the weight of the pan filled with water.

Add half the liquid ingredients to the dry ingredients and blend. Follow the recipe to know how long to blend the batter at this stage. Add remaining liquid ingredients and mix for 1 minute on low speed, then 3 minutes on medium speed. Weigh or measure the amount of cake batter for each pan. The recipe will specify the type and size of pans and the weight of batter to be scaled per pan. Bake according to the recipe. Turn the fan off in a convection oven until the batter is set, about one-third to halfway through the baking time. Remove from oven and cool in the pan for 15 minutes. Continue with the recipe or freeze.

Although many school nutrition operations purchase commercially-prepared pie crusts, this lesson includes the steps to preparing pie crust from scratch. First, combine the flour and the fat. Cut the fat into the flour either by hand, by using a mixer with a paddle attachment, with a pastry knife,
Preparing Cakes, Cookies, and Pastry

or with a food processor. The flour/fat mixture should resemble small peas. Add the ice cold water to the dough and combine. Add the liquid all at once to the flour/fat mixture. Mix to ensure that all the dough is evenly moistened. Turn the dough onto a lightly floured surface and form a compact, flat disk. Wrap and refrigerate the dough. Chilling allows the dough to relax, the fat to firm, and the starches to absorb the liquid. Roll the dough. Place the dough onto a lightly floured work surface. Lightly dust the surface of the dough with flour. Roll the dough into desired thickness and shape. Transfer the dough to the baking pan. Bake the pie or cobbler in a hot oven until the crust is golden brown and the filling cooked.

DEMO: Show participants the dough hook.

ASK: What is the purpose of the dough hook?

FEEDBACK (Answers may include): Kneading bread to develop the gluten.

NOTE TO INSTRUCTOR: Pie crust may be blind baked for improved flakiness. Place the rolled dough in the baking pan and cover with parchment paper or foil. Fill the covered crust with weights and bake for 15 minutes in an oven preheated to 400 °F. If baking weights are not available, use raw beans to weigh down the crust.

DO: Refer and review Quality Score Card for Cakes, Cookies, and Pastries found in the Participant’s Workbook.
Optional Activity: Culinary Application and Practice Activity

**NOTE TO INSTRUCTOR:** Items needed for this activity are not included in instructor’s manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing cakes, cookies, or pies. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the *Culinary Techniques Preparing Cakes, Cookies, or Pies* lesson for this activity.

**Description of the Activity**

1. School nutrition assistants may work as partners or individually, depending on the directions from the manager. One partner should be someone who cooks and the other should be someone who has other responsibilities. Both school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Cakes, Cookies, and Pies. 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. Review the steps of each culinary technique:
   - Culinary Technique: Creaming Method or Conventional Method
   - Culinary Technique: Blending Method
   - Culinary Technique: Pie Crust

The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the service line. Use the Quality Score Card.

**SAY:** 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 a cake or cookie recipe or package directions for a cake mix are 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:

1. Substitute another similar food on the serving line. Follow the school district procedure for menu substitutions.
2. Use the cake or cookies, if possible, in another way in order to avoid wasting the food. Cake or cookie pieces can be layered with pudding, fruit, or low-fat whipped topping as a dessert.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.

**Additional Suggestions**

Use the training kit, *On the Road to Professional Food Preparation*, to demonstrate correct measuring and weighing of ingredients.
Instructor’s Manual

Preparing Yeast Breads

Time: 1 hour

National Food Service Management Institute
The University of Mississippi
# Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1: Improve the quality of whole-grain yeast breads served to students.</td>
<td>Culinary terms: Review culinary terms with participants. Types of flour: Review the various types of flour.</td>
</tr>
<tr>
<td>Objective 2: Improve the variety of whole-grain yeast breads served to students.</td>
<td>Menu planning: Discuss types of grains. Show participants brown and white rice. Discuss menu planning recommendations. Discuss purchasing recommendations. Review <em>MyPlate</em> recommendations. Introduce the healthy benefits of breads. Conduct healthy and unhealthy nutrition facts activity.</td>
</tr>
<tr>
<td>Objective 3: Improve the appeal of whole-grain yeast breads served to students.</td>
<td>Preparing breads: Introduce straight-dough method. Discuss weight versus measure. Review and discuss bread ingredients and the purpose of each ingredient. Allow participants to compare the taste of honey to molasses. Discuss the <em>What Happened to the Yeast Bread?</em> Handout. Preparing breads: Show video clip from <em>Culinary Techniques: Rolls (Yeast) Straight-Dough Method</em>. Quality Score Card: Review and discuss Quality Score Card for Yeast Bread.</td>
</tr>
</tbody>
</table>
**Preparation Checklist**

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reserve equipment and gather lab supplies</strong></td>
<td></td>
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<tr>
<td><strong>Materials needed:</strong></td>
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<tr>
<td>Whole wheat flour baggy</td>
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<tr>
<td>All-purpose flour baggy</td>
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<tr>
<td>Cake flour baggy</td>
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<tr>
<td>Bread flour baggy</td>
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<tr>
<td>White rice baggy</td>
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<tr>
<td>Brown rice baggy</td>
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<tr>
<td>Bread labels (for large audiences, provide multiple sets of labels)</td>
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<tr>
<td>• Whole wheat bread</td>
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<td>• White-wheat bread</td>
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<td>• White bread</td>
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<td>• Specialty wheat or multigrain bread</td>
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<tr>
<td>1 Set of measuring cups - liquid and dry</td>
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<tr>
<td>1 Set of measuring spoons</td>
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<tr>
<td>Scale</td>
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<tr>
<td>Tasting spoons</td>
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<tr>
<td>8 oz. Honey</td>
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<td>8 oz. Molasses</td>
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<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
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<tr>
<td>Nametags, optional</td>
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<tr>
<td><strong>Make copies of Participant’s Workbook</strong></td>
<td></td>
</tr>
</tbody>
</table>
Instructor’s Script

SAY: Welcome to preparing yeast breads section of the Culinary Techniques training. In this lesson, we will cover the following objectives:

1. Improve the quality of whole grain-rich yeast breads served to students.
2. Improve the variety of whole grain-rich yeast breads served to students.
3. Improve the appeal of whole grain-rich yeast breads served to students.

SAY: We would like you to understand the main ideas in this lesson, including:

• Yeast breads play an important role in a healthy diet.
• Each ingredient in a yeast bread recipe has a special job to do. Follow the recipe exactly. The culinary technique, straight-dough method for yeast breads, is a step-by-step way to prepare breads that meet quality standards.
• All yeast breads should be evaluated using the Quality Score Card before placement on the serving line.

DO: Refer to the important terms related to wheat-flour in this lesson include in the Participant’s Workbook.

• **Enriched**: Flour supplemented with iron and four B-vitamins (thiamine, niacin, riboflavin, and folate) and sometimes calcium to replace some of the nutrients lost during processing.
• **Fortified**: Implies that something is added to a product that makes its nutritional status higher than the product made from unprocessed raw materials.
• **Pre-sifted flour**: Sifted at the mill, making it unnecessary to sift before measuring.
• **Bromated flour**: Flour enriched with potassium bromate, a maturing agent, which promotes gluten development. It’s largely discontinued in the United States. Ascorbic acid is now being added to strengthen the flour used in bread dough.
• **Bleached**: Refers to flour that has been chemically bleached to whiten or improve the baking qualities. No change occurs in the nutritional value of the flour and no harmful chemical residues remain. Bleaching speeds up the natural lightening and maturing of flour.
• **Unbleached flour**: Aged and bleached naturally by oxygen in the air. It is more golden in color and may not have the consistency in baking qualities that bleached flour does. Unbleached is preferred for yeast breads because bleaching affects gluten strength.
• **Patent flour, bleached or unbleached**: The highest grade of flour. It is lower in ash and protein with good color. Market-wise, it is considered the highest in value and is mostly used by bakers.

DO: Refer to the important terms related to this lesson in the Participant’s Workbook.

• **Culinary**: Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
• **Culinary Technique**: A step-by-step food preparation method. The culinary technique discussed in this lesson is the straight-dough method for yeast breads.
• **Gluten:** The protein in flour. Gluten strands are formed as the result of kneading the flour and water and they give the structure to a bread product.

• **Just-In-Time Preparation:** Preparing a menu item in small enough amounts 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 period of time. Other terms that mean the same thing are *batch cooking* and *cooking to the line*.

• **Mise en Place (meez-un-plahss):** A French term used by chefs and other culinary 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.

• **Proofing:** The final rising period before baking for yeast dough that has been shaped.

• **Scaling:** A baking term that means measuring and weighing ingredients. Dry ingredients should be weighed. If scales are not available, measure dry ingredients with dry measuring utensils. Liquid ingredients should be measured using liquid measuring utensils.

• **Slashing:** Using a sharp knife to make several cuts diagonally across the bread loaf before it is baked. This is usually done for breads that have a hard crust, such as French bread. Also called *docking*.

**SAY:** Not all flours are the same. There are different types of flours available depending on the type of bread desired. The following definitions will help you understand the differences among flour.

**DO:** Refer to the important terms related to the different types of flour in the Participant’s Workbook.

• **All-purpose flour:** White flour milled from hard wheat or a blend of hard and soft wheat. It gives the best results for many kinds of products, including some yeast breads, quick breads, cakes, cookies, pastries, and noodles. It is usually enriched and may be bleached or unbleached. Protein varies from 8–11%.

• **Bread flour:** White flour that is a blend of hard, high-protein wheat and has greater gluten strength and protein content than all-purpose flour. It is unbleached and in some cases conditioned with ascorbic acid. Protein varies from 12–14%.

• **Cake flour:** Finely textured, silky flour milled from soft wheat with low protein content. It is used to make cakes, cookies, crackers, quick breads, and some types of pastry. Cake flour has a greater percentage of starch and less protein, which keeps cakes and pastries tender and delicate. Protein varies from 7–9%.

• **Self-rising flour:** Also referred to as phosphate flour, it is a convenience product made by adding salt and leavening to all-purpose flour. It is commonly used in biscuits and other quick breads, but is not recommended for yeast breads. One cup of self-rising flour contains 1 1/2 teaspoons baking powder and 1/2 teaspoon salt. Self-rising can be substituted for all-purpose flour by reducing salt and baking powder according to these proportions.

• **Pastry flour:** Has properties intermediate between those of all-purpose and cake flours. It is usually milled from soft wheat for pastry-making, but can be used for cookies, cakes, crackers, and similar products. It differs from hard wheat flour because it has a finer texture and lighter consistency. Protein varies from 8–9%.
Preparing Yeast Breads

- **Semolina flour**: The coarsely ground endosperm of durum, a hard spring wheat with a high-gluten content and golden color. It is hard, granular, and resembles sugar. Semolina is usually enriched and is used to make couscous and pasta products such as spaghetti, vermicelli, macaroni, and lasagna noodles. Except for some specialty products, breads are seldom made with semolina.

- **Whole wheat or graham flour**: Used interchangeably; nutrient values differ minimally. Either grinding the whole wheat kernel or recombining the white flour, germ, and bran that have been separated during milling produces them. Their only differences may be in coarseness and protein content. Insoluble fiber content is higher than in white flour.

- **Gluten flour**: Usually milled from spring wheat and has a high protein (12–14%), low-starch content. It is mixed with other non-wheat or low-protein wheat flours to produce a stronger dough structure. Gluten flour improves baking quality and produces high-protein gluten bread.

**DEMO**: Pass around small containers of whole wheat, all-purpose flour, cake flour, and bread flour. Ask participants if they can identify the type of flour(s).

**NOTE TO INSTRUCTOR**: Be sure to fully review with the participants the protein content of the flours listed above.

**SAY**: Grains are divided into 2 subgroups; whole grains and refined grains. Whole grains contain the entire grain kernel - the bran, germ, and endosperm. Examples include: whole wheat flour, bulgur (cracked wheat), oatmeal, whole cornmeal, and brown rice.

**DEMO**: Show participants a baggy of brown rice.

**SAY**: Refined grains have been milled, a process that removes the bran and germ. This is done to give grains a finer texture and improve their shelf life, but it also removes dietary fiber, iron, and many B vitamins. Some examples of refined grain products include: white flour, degermed cornmeal, white bread, and white rice.

**DEMO**: Show participants a baggy package of white rice.

**SAY**: Most refined grains are enriched. This means certain B vitamins (thiamin, riboflavin, niacin, folic acid) and iron are added back after processing. Fiber is not added back to enriched grains. Check the ingredient list on refined grain products to make sure that the word “enriched” is included in the grain name. Some food products are made from mixtures of whole grains and refined grains.

**SAY**: Dietary guidelines recommend that half of our grains should be whole grains. School baked yeast rolls are an excellent way to increase whole grains in students’ diets. Grains provide important vitamins and minerals without providing large quantities of fat. Most breads and cereals are naturally low in fat. Only when butter, margarine, mayonnaise, or heavy sauces are added does this group become high in fat. Whole grain breads and cereals are especially important because they provide a good source of dietary fiber.
Menu planning practices should be focused on creating healthy school meals. Use the following recommendations when planning healthy school menus:

- Plan a variety of breads and bread alternates such as whole wheat breads, multigrain breads, and brown rice.
- Offer scratch-baked bread, replacing most of the white flour with whole wheat flour. Begin slowly by replacing 1/3 of the white flour with whole wheat flour and gradually increasing until the whole wheat part is greater than 50%. More leavening ingredients and liquids may be required as the percentage of whole-grain flour increases.

To prepare healthy school meals, you need to purchase healthy school foods. For example:

- When purchasing oils and fats to use in preparing yeast breads, purchase polyunsaturated and/or monounsaturated oils, such as canola, corn, cottonseed, olive, peanut, safflower, soybean, or sunflower oils.
- Do not purchase or use lard.
- Avoid hydrogenated oils/fats, which may contain trans-fats.

NOTE TO INSTRUCTOR: Under the new school lunch and breakfast meal patterns, there is no longer a total fat requirement. Saturated fat must be less than 10% of calories, averaged over a school week. This is not a change from current NSLP requirements. There is, however, a new trans-fat requirement. School meals must contain zero grams of added trans-fat per portion. In order for schools to comply with this provision, menu planners must review the nutrition label or manufacturer specifications—these must indicate zero grams of trans-fat per serving. Naturally occurring trans-fat in meat and dairy is excluded from this requirement. More detailed information on how to determine the trans-fat levels of mixed dishes, containing both naturally-occurring and added (synthetic) can be found in the Trans Fat section of FNS memorandum SP-10-2012.

Children should eat 4–7 ounce equivalents of grains each day with at least half of those grains being whole grains. According to MyPlate:

- Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, may reduce the risk of coronary heart disease.
- Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, may reduce constipation.
- Eating at least 3 ounce equivalents a day of whole grains may help with weight management.

Grains are important sources of many nutrients, including dietary fiber, several B vitamins (thiamin, riboflavin, niacin, and folate), and minerals (iron, magnesium, and selenium). Dietary fiber from whole grains, as part of an overall healthy diet, helps reduce blood cholesterol levels and may lower risk of heart disease. Fiber is important for proper bowel function. It helps reduce constipation and
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diverticulitis. Fiber-containing foods such as whole grains help provide a feeling of fullness with fewer calories. Whole grains are good sources of dietary fiber; most refined (processed) grains contain little fiber.

SAY: The B vitamins (thiamin, riboflavin, niacin, and folate) play a key role in metabolism – they help the body release energy from protein, fat, and carbohydrates. The B vitamins are also essential for a healthy nervous system. Many refined grains are enriched with these B vitamins. Folate, another B vitamin, helps the body form red blood cells.

SAY: Iron is used to carry oxygen in the blood. Many teenage girls and women in their childbearing years have iron-deficiency anemia. They should eat foods high in heme iron (meats) or eat other iron containing foods along with foods rich in vitamin C, which can improve absorption of non-heme iron. Whole and enriched refined grain products are major sources of non-heme iron in American diets.

ASK: What foods are rich in vitamin C?

FEEDBACK (Answers may include): Cantaloupe, kiwi, okra, pineapple, radishes, spinach, strawberries, tomatoes, and watermelon.

NOTE TO INSTRUCTOR: Participants may share other feedback than the ones noted above. Fruits and vegetables that contain 12 mg or more vitamin C per reference amount (20% of the Daily Value per reference amount) qualify to carry the label “high in vitamin C. For the complete list of vitamin C foods go to: http://www.fruitsandveggiesmorematters.org/vitamin-c-in-fruits-and-vegetables.

SAY: Whole grains are sources of magnesium and selenium. Magnesium is a mineral used in building bones and releasing energy from muscles. Selenium protects cells from oxidation. It is also important for a healthy immune system.

SAY: Menus for school meals should provide students with a selection of whole grain bread, pastas, rice, and cereals. This lesson is about preparing yeast breads, one of the most popular foods served in any school cafeteria. The smell of scratch-baked yeast breads gives an important message to students. The message is that school meals are made with pride by professionals who can prepare real foods from scratch. There are many excellent recipes that include interesting ways to present yeast breads. Some examples of yeast breads include pizza crusts, flatbreads, and breadsticks.

DO: Divide participants into teams. Give each team a different type of bread label: whole wheat, white wheat, white, specialty grain, etc. Allow the teams to write down what they perceive as healthy or unhealthy aspects from reading the nutrition facts label.

SAY: The straight-dough method is a culinary technique used by professional bakers the world over. Using it the right way with a good recipe insures quality yeast bread that can be served with pride. Yeast bread recipes, like all other recipes, are based on principles of food production. Principles are
rules that apply in many different situations. So even though there are thousands of recipes for different kinds of yeast breads, they are all based on the same basic principles of combining ingredients. Understanding these basic principles of preparing yeast breads is important because it explains the importance of each ingredient and why certain steps of a recipe must be completed.

**SAY:** Scaling is a baking term that means measuring and weighing ingredients. Dry ingredients should be weighed. Liquid ingredients can be measured by volume. Good quality yeast bread begins with scaling the ingredients exactly for the amounts shown in the recipe. Weighing and measuring ingredients the right way is the difference between success and failure in many recipes.

**DO:** Show participants the volume measures such as measuring spoons, cup, or gallon.

**SAY:** Use volume to measure liquid ingredients and other ingredients in amounts less than two ounces. Always measure the ingredients in the largest appropriate container.

**ASK:** What measuring container would you use to add 2 cups of milk to a recipe?

**FEEDBACK (Answers may include):** One pint measure.

**SAY:** Weighing is easier and more accurate than measuring ingredients by volume. Ounce and pound are the only two measures of weight used in food production. Scales are used to measure ingredients by weight.

**DEMO:** Show participants a 1 cup measure of flour.

**DEMO:** Using a scale, weigh the cup of flour.

**NOTE TO INSTRUCTOR:** Do not include the weight of the cup. Place a container on the scale; tare to zero, then add the flour.

**ASK:** How much does this 1 cup of flour weigh?

**SAY:** One cup is an 8 ounce measure for liquids; however one cup of flour weighs approximately 4 to 5 ounces. Recipes can go wrong quickly when school nutrition professionals confuse weights and measures.

**SAY:** Each ingredient in a yeast bread recipe has a special job to do. The following is an explanation of the function of the typical ingredients in a yeast bread recipe.

**SAY:** Flour is the main ingredient in yeast bread recipes. Gluten is a protein complex that develops from proteins found in flour, especially wheat flour. It develops into long strands when mixed with liquid. These strands form a structure that traps air as bread rises and helps give the bread structure when
Different kinds of flour have different amounts of proteins that form gluten. Hard-wheat flour has more gluten-forming proteins than soft-wheat flour. Bread flour is made from hard-wheat flour. The greater amount of gluten-forming proteins helps form a stronger structure appropriate for bread. Cake or pastry flour is made from soft-wheat flour. Less gluten-forming proteins give a more delicate structure that is desirable for a cake or pastry. All-purpose flour, the kind usually used in schools, is a mixture of both hard-wheat and soft-wheat flour.

**Say:** As we stated earlier in the lesson, there are different types of flour. Types of flour include bread flour, all-purpose flour, self-rising flour, cake flour, whole wheat flour, whole wheat blends, and rye flour (20% rye flour). Whole wheat and rye flours by themselves do not contain enough protein to produce adequate gluten for yeast breads. Most whole wheat and rye breads contain some all-purpose or bread flour to provide enough gluten.

**Ask:** How can the flour affect the quality of the bread?

**Feedback (Answers may include):** Using the same roll or bread recipe, the following things can happen because of the flour:

- **Poor Volume** – The bread does not rise as much as it should. The gluten in the flour was not developed enough (bread was not kneaded adequately) or the amount of gluten was not enough to give structure. An example is when whole wheat flour is substituted for too much of the all-purpose or bread flour in a recipe.

- **Coarse Texture** – The bread has a course crumb. This can happen because the recipe was not followed and too little flour was added. Since the gluten in the flour gives the structure, too little gluten means that not enough elastic strands of gluten would be developed for a fine crumb. A coarse texture can also be caused from under kneading.

**Say:** The second ingredient is yeast. Yeast is a living organism that produces carbon-dioxide gas that enables bread to rise. In order for the yeast to work, it must be alive. Packages of yeast show a use by date that means the yeast should be alive up to that date. Remember to use yeast by the date on the package and don’t risk ruining an excellent recipe by using old yeast.

Types of yeast:

1. **Active dry yeast** – Free-flowing in foil bags or vacuum sealed. This yeast must be rehydrated in water at 110 °F–115 °F.

2. **Instant dry yeast** – Vacuum sealed foil packages. This yeast is mixed with dry ingredients or added directly to dough. Liquid should be 120 °F–130 °F.

3. **Compressed yeast** – Block form or bulk. Yeast bread recipes give specific instructions for use.

**Ask:** What happens when yeast is added to liquid hotter than 140 °F to 145 °F?

**Feedback (Answers may include):** The yeast is destroyed.
In school kitchens, instant dry yeast is often used. Instant dry yeast can be combined with all the other dry ingredients before the warm liquid is added. Because the instant dry yeast is protected by the flour in the mixture, the temperature of the liquid can be as high as 120 °F when it is added to the dry ingredients. Follow the recipe exactly when combining the yeast with warm liquid because liquid that is too hot will kill the yeast cells and liquid that is too cold will mean the yeast cells cannot grow. In either case, the yeast will not make the bread rise. So remember to check the following items before combining ingredients:

- To yield a quality product, the yeast should be checked to be sure it is not old and out of date.
- The temperature of the water should be checked before adding to the dry ingredients to be sure it is not too hot or too cold.

How can the yeast affect the quality of the bread?

Feedback (Answers may include):
1. Heavy texture of the bread could result when:
   - Lack of proper mixing to distribute the yeast cells
   - Lack of time for the yeast to grow
   - Old or dead yeast
   - Too little yeast (poor volume)
2. Bread with too great a volume results when too much yeast is used. A yeasty taste is caused by allowing bread to rise too long so that too much yeast grows.

The third ingredient is the liquid. The liquid in a yeast bread recipe is needed to mix all the ingredients together and to moisten the protein so it can be developed into strands of gluten by kneading. Types of liquid include water and milk.

How can the liquid affect the quality of the bread?

Feedback (Answers may include):
1. Temperature: The liquid must be carefully measured and should be at the right temperature for the kind of yeast to be used. A liquid that is above 130 °F will kill the yeast; at temperatures below 34 °F the yeast will not grow. The ideal temperature for the liquid in yeast bread is affected by the kind of yeast that will be used. Follow the recipe exactly for the temperature of the liquid. Use a stem-type thermometer to check the actual temperature of the liquid before it is added to the yeast or dry ingredient mixture.
2. Water has an effect on yeast bread dough. Soft water produces sticky dough while hard water slows the fermentation of the dough. Warm water helps the dough reach the right temperature quicker than using cold.
Preparing Yeast Breads

SAY: The fourth ingredient is sugar. Sugar in a yeast bread recipe provides food for the yeast. In proper amounts, it speeds the action of the yeast, helps the bread to brown, and contributes to tenderness. Recipes describe the right kind of sugar to use. Honey, molasses, and sorghum provide more sweetening power than white sugar, give a different flavor, make the bread darker, and improve the keeping qualities.

DEMO: Allow participants to compare the taste of honey to molasses.

NOTE TO INSTRUCTOR: To prevent cross-contamination, provide tasting spoons.

ASK: How can the sugar affect the quality of the bread?

FEEDBACK (Answers may include): In a sweet bread recipe, such as cinnamon rolls, the additional sugar causes the yeast to grow slower so the proofing time will be longer. Yeast bread gets some sugar from the action of the yeast on the flour and some is included in the recipe.

SAY: The fifth ingredient is salt. Even though yeast bread recipes do not contain much salt, the small amount used has several important roles to play. Salt adds flavor. Salt controls the yeast development and increases the time required for bread to rise. Salt has a firming effect on gluten structure. Salt in yeast bread recipes should not be omitted or the amount changed from the recipe.

ASK: How can the salt affect the quality of the bread?

FEEDBACK (Answers may include): When there is too little salt, yeast grows too fast and the gluten structure will not support the bread. Too much salt causes the bread to fall and makes the texture too dense or heavy. When salt is added to the mixture is important; it should be added with the flour and other dry ingredients, never to the yeast and water mixture since it can retard the growth of the yeast. A flat flavor occurs when salt is omitted.

SAY: The sixth and last ingredient is fat. The small amount of fat called for in yeast bread recipes should never be reduced. Fat provides flavor and tenderness in yeast breads. It helps the crust to brown and it gives the bread keeping quality. Yeast bread recipes may call for oil, margarine, or butter. Use the kind of fat specified in the recipe. Butter and margarine both have 20% moisture so oil cannot be substituted in the same amount without adjusting the liquid. Butter or margarine should not be added to the top of rolls before they are served. Adding this extra fat is not necessary for a good taste and it adds too much fat to the bread.

ASK: How can the fat affect the quality of the bread?

FEEDBACK (Answers may include): Too little fat can cause the bread to be tough and lack flavor. Since fat affects the keeping quality, a recipe with too little fat means the bread will become stale quickly.
DO: Discuss the What Happened to the Yeast Bread? Handout found in the Participant’s Workbook.

DO: Refer participants to the handout, USDA Yeast Rolls recipe (B-16) in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: Use these steps when following the straight-dough method for yeast breads:
1. Scale ingredients: Dry ingredients should be weighed and liquid ingredients should be measured.
2. Mix: Combine all ingredients and mix with an upright mixer or a vertical mixer.
3. Knead: Using the dough hook, increase the speed and knead until smooth.
4. Ferment: Shape the dough into a round ball and leave in the mixing bowl in a warm place to rise.
5. Punch down the dough: Pull the dough up on all sides, fold over the center, pressing down and turning over in the bowl.
6. Bench and rest: Leave the dough for a short time to give it time to recover from punching down.
7. Portion dough: Divide dough into portions as described in the recipe.
8. Round and shape: Round and shape the dough as described in the recipe.
9. Bench proof: Allow the shaped dough to rise until it is doubled in size and springs back slowly when punched with a finger.
10. Bake: Bake according to the time and temperature given in the recipe. Loaf bread will sound hollow when tapped lightly on the bottom.
11. Cool and store: Cool yeast bread at room temperature after it is removed from the pan. Do not refrigerate.

DO: Show video clip from Culinary Techniques: Rolls (Yeast) Straight-Dough Method.

SAY: 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 a yeast bread 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:
1. Substitute another bread product on the serving line. Follow the school district procedure for menu substitutions.
2. Use the bread another way, if possible, to avoid wasting the food. Some examples of ways yeast bread can be used include making salad croutons, bread crumbs, breading, and bread pudding.
3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time.
DO: Discuss the Quality Score Card for Yeast Breads found in the Participant’s Workbook.

Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in instructor’s manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing yeast breads using the Culinary Technique – The Straight-Dough Method for Yeast Breads. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques: Preparing Yeast Breads lesson for this activity.

Description of the Activity:
1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.
2. The school nutrition manager and assistants should discuss the culinary practice for preparing yeast breads. Make a note of the date the Culinary Practice should be completed and discussed with the manager.
3. The school nutrition manager will approve the recipe to be used for the practice. The recipe should use the straight-dough method. Review the steps of this culinary technique:
   • Culinary Technique: The Straight-Dough Method for Yeast Breads
4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card for Yeast Breads.

Optional Additional Suggestions:
• Use the training kit, On the Road to Professional Food Preparation, to demonstrate correct measuring and weighing of ingredients.
• Using a 6 quart mixer, demonstrate preparing the yeast bread using USDA Yeast Rolls recipe (B-16). Recipe should be reduced to 25 servings to accommodate the small mixer.
## Lesson-at-a-Glance

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
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<tbody>
<tr>
<td><strong>Objective 1: Improve the quality of quick breads served to students.</strong></td>
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<tr>
<td>Culinary terms</td>
<td>Review culinary terms with participants.</td>
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</tbody>
</table>
| Weighing and measuring ingredients | Review the steps for weighing ingredients.  
Demonstrate how to weigh ingredients using a scale.  
Demonstrate measuring 1 cup of flour.  
Demonstrate measuring 1 quart of water. |
| Menu planning | Discuss methods for reducing fats.  
Discuss menu planning recommendations.  
Discuss purchasing recommendations.  
Review *MyPlate* recommendations.  
Introduce the healthy benefits of breads. |
| **Objective 2: Improve the variety of quick breads served to students.** | |
| Preparing quick breads | Review and discuss the basic principles of preparing quick breads.  
Review and discuss bread ingredients and the purpose of each ingredient.  
Demonstrate leavening by blowing up a balloon using baking soda combined with vinegar.  
Compare types of powdered sugar. |
| **Objective 3: Improve the appeal of quick breads served to students.** | |
| Preparing quick breads | Discuss the *What Happened to the Quick Bread?* handout. |
| Muffin method | Review and discuss the steps in preparing quick breads-muffin method.  
Review recipe. |
| Muffin method | Show video clip from *Culinary Techniques: Muffins.* |
| Biscuit method | Review and discuss the step in preparing quick breads-muffin method.  
Review recipe. |
| Biscuit method | Show video clip from *Culinary Techniques: Biscuits.* |
| Quality Score Card | Review and discuss Quality Score Card for Quick Breads. |
## Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
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<tbody>
<tr>
<td><strong>Reserve equipment and gather lab supplies</strong></td>
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<tr>
<td><strong>Materials needed:</strong></td>
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<tr>
<td>Scale</td>
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<tr>
<td>1 lb. Flour</td>
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<tr>
<td>Dry measuring cup</td>
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<td>Measuring spoons</td>
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<tr>
<td>Straight-edged spatula</td>
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<tr>
<td>1 Quart clear measuring cup</td>
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<tr>
<td>1 Balloon-12 inch diameter</td>
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<tr>
<td>Funnel-small</td>
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<tr>
<td>1 Tbsp Baking soda</td>
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<tr>
<td>6 oz. Vinegar</td>
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<tr>
<td>16 oz. Plastic bottle-clear</td>
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<tr>
<td>1 Box 4X Powdered sugar</td>
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<tr>
<td>1 Box 10X Powdered sugar</td>
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<tr>
<td>Tasting spoons</td>
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<tr>
<td>1 Large mixing bowl</td>
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<tr>
<td>TV/DVD combo on cart</td>
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<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
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<tr>
<td>Nametags, optional</td>
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<tr>
<td><strong>Make copies of Participant’s Workbook</strong></td>
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</tbody>
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Instructor’s Script

SAY: Welcome to preparing yeast breads section of the Culinary Techniques training. In this lesson, we will cover the following objectives:

1. Improve the quality of quick breads served to students.
2. Improve the variety of quick breads served to students.
3. Improve the appeal of quick breads served to students.

SAY: We would like you to understand the main ideas in this lesson, including:

- Quick breads play an important role in a healthy diet.
- Each ingredient in a quick bread recipe has a special job to do. Follow the recipe exactly.
- The two main culinary techniques used to make quick breads are the muffin method and the biscuit method.
- All quick breads should be evaluated using the Quality Score Card before placement on the serving line.

DO: Refer to the important terms related to this lesson found in the Participant’s Workbook.

- **All-Purpose Flour:** White flour milled from hard wheat or a blend of hard and soft wheat. It gives the best results for many kinds of products, including some yeast breads, quick breads, cakes, cookies, pastries, and noodles. It is usually enriched and may be bleached or unbleached. Protein varies from 8–10%.
- **Conventional Oven:** An electric or gas oven arranged either as decks or under a range top.
- **Convection Oven:** An oven that has a fan that constantly circulates heated air across the food. This convection action increases the heat absorption process, shortens required cooking time, and reduces shrinkage of food.
- **Culinary:** Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
- **Culinary Technique:** A step-by-step food preparation method.
- **Just-In-Time Preparation:** Preparing a menu item in small enough amounts 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 period of time. Other terms that mean the same are batch cooking and cooking to the line.
- **Leavening Agent:** An ingredient that makes a product light and porous. Leavening agents include yeast, baking powder, baking soda, eggs, egg whites, air, and steam.
- **Mise en Place (meez-un-plahss):** A French term used by chefs and other culinary 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.
- **Nutrients:** The chemical substances found in food that nourish the body. There are six classes of nutrients: proteins, carbohydrates, fats, water, minerals, and vitamins.
• **Self-Rising Flour:** Also referred to as phosphate flour, it is a convenient product made by adding salt and a leavening agent to all-purpose flour. It is commonly used in biscuits and other quick breads, but is not recommended for yeast breads. One cup of self-rising flour contains 1 1/2 teaspoons of baking powder and 1/2 teaspoon salt. Self-rising flour can be substituted for all-purpose flour by reducing salt and baking powder according to these proportions.

**SAY:** Ingredients should be weighed carefully. Follow these rules when weighing ingredients as given in your Participant’s Workbook. For more information on weighing dry ingredients refer to *On the Road to Professional Food Preparation* Lesson 2, Weights and Measures:

- Be sure the pointer is on zero when you begin.
- Place the container for the ingredient on the scale’s platform.
- If using a scale with a fixed dial, place the container on the platform; record the weight of the container. Add the ingredients until the total weight equals the required weight, plus the weight of the container.
- If using a scale with an adjustable dial, place the container on the platform and turn the pointer to zero. Add the ingredients until the dial reflects the required weight.
- If using an electronic scale, press the tare button after the container is placed on the platform.

**DEMO:** Demonstrate the rules (as stated above) for weighing ingredients. Weigh 1 pound of flour.

**SAY:** There are specific rules for measuring dry ingredients.

- Use standard measuring equipment. Select the right measuring container. For more information on measuring dry ingredients refer to *On the Road to Professional Food Preparation* Lesson 2, Weights and Measures.
- Use the largest appropriate standard measuring container to save time and to reduce error.
- Exception: To measure flour, do not use a container larger than 1 quart because flour packs easily.
- Spoon ingredient lightly into the measuring container. (If lumpy, sift before measuring.)
- Exception: Pack brown sugar firmly into the measuring container so it will take the shape of the container when emptied.
- Fill the measuring container to overflowing and level off with a straight-edged spatula.
- Avoid shaking or tapping measuring container.

**DEMO:** Demonstrate measuring 1 cup of flour by filling the measuring container to overflowing and level off with a straight-edged spatula.

**SAY:** There are specific rules for measuring liquid ingredients.

- Use the largest appropriate standard measuring container. Select the right measuring container for measuring liquid ingredients.
- Place liquid measuring container on a flat surface.
- Pour liquid into the container until it reaches the desired level.
- Read at eye level when using a clear container. If a metal container is used, look inside the container as the liquid is filled to the desired level.
PREPARING QUICK BREADS

DEMO: Demonstrate measuring 1 quart of water using a clear quart measuring container.

SAY: When using muffin tins, grease tins by spraying with nonstick cooking spray or brushing with softened margarine, butter, or shortening. Paper liners can be used instead of greasing the muffin tins. If muffin pans are not available, use paper soufflé cups placed on a sheet pan for baking scratch-made muffins.

SAY: To reduce fat in quick breads, fruit or bean purees are often used as fat substitutes. The pectin in these foods forms a film around the tiny air bubbles in the batter, similar to what occurs when you cream solid shortenings with sugar, but not as effectively. Up to half of the solid fat can be replaced with pureed fruits or vegetables in recipes:
- Applesauce
- Apple or pear puree
- Mashed bananas
- Pureed carrots
- Pureed figs
- Pureed prunes
- Pureed pumpkins
- Pureed cooked white beans
- Pureed cooked black beans
- Pureed sweet potatoes

SAY: Applesauce is the favored fruit puree used in quick breads because it is readily available, inexpensive, contains more pectin than other fruit purees, and doesn't impart a strong flavor.

A cup of butter or margarine contains 180 grams of fat and about 1,600 calories, while a cup of applesauce has little or no fat and about 100 calories. Remember to standardize the recipe for use in your foodservice operation.

SAY: The Dietary Guidelines for Americans recommend that half of our grains should be whole grains. Scratch-baked quick breads are an excellent way to increase whole grains in students’ diets. Grains provide important vitamins and minerals without providing large quantities of fat. Most breads and cereals are naturally low in fat. Only when butter, margarine, mayonnaise, or heavy sauces are added does this group become high in fat. Whole-grain breads and cereals are especially important because they provide a good source of dietary fiber.

SAY: Menu planning practices should be focused on creating healthy school meals. Consider the following recommendations when planning for healthy school meals.
- Plan a variety of breads such as whole wheat breads and multigrain breads.
- Offer scratch-baked bread, replacing most of the white flour with whole wheat flour. Begin slowly by replacing 1/3 of the white flour with whole wheat flour and gradually increasing until the whole wheat part is greater than 50%. More leavening ingredients and liquids may be required as the percentage of whole-grain flour increases.
NOTE TO INSTRUCTOR: The new meal pattern guidelines require that all grains served in school meal programs must be 100% whole grain by 2014/15 school year.

SAY: To prepare healthy school meals, you need to purchase healthy school foods. For example:
• When purchasing oils and fats to use in preparing quick breads purchase polyunsaturated and/or monounsaturated oils, such as canola, corn, cottonseed, olive, peanut, safflower, soybeans, or sunflower oils.
• Lard should not be purchased.
• Avoid hydrogenated oils/fats, which may contain trans-fats.

NOTE TO INSTRUCTOR: Under the new school breakfast and lunch meal patterns, there is no longer a total fat requirement. Saturated fat must be less than 10% of calories, averaged over a school week. This is not a change from previous NSLP requirements. There is, however, a new trans-fat requirement. School meals must contain zero grams of added trans-fat per portion. In order for schools to comply with this provision, menu planners must review the nutrition label or manufacturer specifications- these must indicate zero grams of trans-fat per serving. Naturally occurring trans-fat in meat and dairy is excluded from this requirement. More detailed information on how to determine the trans-fat levels of mixed dishes, containing both naturally-occurring and added (synthetic) can be found in the Trans-Fat section of FNS memorandum SP-10-2012.

Nutrition label or manufacturer specifications must indicate zero grams of trans-fat per serving. Manufacturers are allowed to label their products as containing “zero grams” if the product contains 0.5 grams or less, but the product label must state “zero grams” to be an allowable product.

SAY: Children should eat 4–7 ounce equivalents of grains each day with at least half of those grains whole grains. According to MyPlate,
• Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, may reduce the risk of coronary heart disease.
• Consuming foods rich in fiber, such as whole grains, as part of a healthy diet, may reduce constipation.
• Eating at least 3-ounce equivalents a day of whole grains may help with weight management.

SAY: Grains are important sources of many nutrients, including dietary fiber, several B vitamins (thiamin, riboflavin, niacin, and folate), and minerals (iron, magnesium, and selenium). Dietary fiber from whole grains, as part of an overall healthy diet, helps reduce blood cholesterol levels and may lower risk of heart disease. Fiber is important for proper bowel function. It helps reduce constipation and diverticulitis. Fiber-containing foods such as whole grains help provide a feeling of fullness with fewer calories. Whole grains are good sources of dietary fiber; most refined (processed) grains contain little fiber.

SAY: The B vitamins (thiamin, riboflavin, niacin, and folate) play a key role in metabolism – they help the body release energy from protein, fat, and carbohydrates. The B vitamins are also essential for a
healthy nervous system. Many refined grains are enriched with these B vitamins. Folate, another B vitamin, helps the body form red blood cells.

*SAY:* Iron is used to carry oxygen in the blood. Many teenage girls and women in their childbearing years have iron-deficiency anemia. They should eat foods high in heme iron (meats) or eat other iron containing foods along with foods rich in vitamin C, which can improve absorption of non-heme iron. Whole and enriched refined grain products are major sources of non-heme iron in American diets.

*ASK:* What foods are rich in vitamin C?

**FEEDBACK (Answer may include):** Cantaloupe, kiwi, okra, pineapple, radishes, spinach, strawberries, tomatoes, and watermelon.

**NOTE TO INSTRUCTOR:** Participants may share other feedback other than ones noted above. Fruits and vegetables that contain 12 mg or more vitamin C per reference amount (20% of the Daily Value per reference amount) qualify to carry the label “high in vitamin C.” For the complete list of vitamin C foods go to: http://www.fruitsandveggiesmorematters.org/vitamin-c-in-fruits-and-vegetables.

*SAY:* Whole grains are sources of magnesium and selenium. Magnesium is a mineral used in building bones and releasing energy from muscles. Selenium protects cells from oxidation. It is also important for a healthy immune system.

*SAY:* Menus for school meals should provide students with a selection of whole-grain bread, pastas, rice, and cereals. This lesson is about preparing quick breads, one of the most popular foods served in any school cafeteria. The smell of scratch-baked quick breads gives an important message to students. The message is that school meals are made with pride by professionals who can prepare real foods from scratch.

*SAY:* There are many excellent recipes that include interesting ways to present quick breads. Some examples of quick breads that can be served at school include muffins, biscuits, coffee cakes, pancakes, and loaf-style quick breads. Quick breads are a great way to liven up a school menu using such USDA recipes as Oatmeal Muffin Squares, Sweet Potato Prune Bread, or Muffin Squares with added ingredients for variety.

*SAY:* There are basic principles of preparing quick breads. A culinary technique is a step-by-step way to prepare a quality food product. The culinary techniques described in this lesson have been developed by food professionals and used in schools, restaurants, commercial cafeterias, and in homes. By using a recipe and the right culinary technique, a quality quick bread can always be produced. To appreciate why culinary techniques for quick breads are organized as they are, it is necessary to understand the purpose of each ingredient in a quick bread recipe.
Basic ingredients in all quick breads are flour, liquid, leavening agent, and flavorings. Most quick bread recipes also include eggs and some kind of fat. Each quick bread recipe has different types and varying amounts of these basic ingredients. The dry ingredients should be weighed and the liquid ingredients should be measured. Weighing is more accurate than measuring because it is not affected by the packing of ingredients such as flour, or by the way the measuring cup is filled.

There are three types of quick breads, depending on the amount of flour and amount of liquid. The ingredients do the same job in each kind of quick bread recipe.

- Pour batter for pancakes and waffles. This type has the most liquid and the least flour.
- Drop batter for muffins, pan breads, drop biscuits, and loaf-style quick breads.
- Soft dough for rolled and cut biscuits and scones. This type has the most flour and least liquid.

Each ingredient in a quick bread recipe has a special job to do. The following is an explanation of the function of the typical ingredients in a quick bread recipe:

- **The first ingredient is flour.** Flour is the main ingredient in any bread recipe. Gluten is a complex protein that develops the proteins found in flour, especially wheat flour. It develops into long strands when mixed with liquid. These strands form a structure that traps air as bread rises and gives the bread structure when baked. Just like flour in yeast bread, the gluten in the batter or dough helps give a quick bread its structure. The difference is that in a quick bread, a strong structure like yeast bread is not desirable. Quick breads are mixed very little so less gluten develops and a tender structure is formed. Self-rising flour is all-purpose flour that contains a leavening agent and salt. Follow the recipe and use the type of flour specified. Cornmeal or whole wheat flour are both sometimes used in combination with all-purpose or self-rising flour in quick bread recipes.

- **The second ingredient is fat.** Quick bread recipes include some kind of fat such as margarine, butter, oil, or hydrogenated shortening. The fat keeps the proteins in the flour from sticking together. This makes the batter or dough short and the finished product tender. Fat in the recipe also keeps the product from sticking to the pan and gives it flavor and improves its keeping quality. Peanut butter is sometimes substituted for the fat portion of a recipe since it is a high fat product. One and one half cups of peanut butter replaces one cup of shortening. Try a new recipe that includes fruit or yogurt as a replacement for fat. Some newer quick bread recipes have less fat than older versions. In some of the recipes, a portion of the fat has been replaced with another product, like applesauce or another soft fruit puree, such as prunes or bananas. Sometimes, a part of the fat in the recipe is replaced with yogurt. These quick breads are lower in fat and are often very tasty. Quick bread recipes that are lower in fat usually do not stay fresh as long as higher fat products.

- **The third ingredient is a leavening agent.** Breads rise from air, steam, or the gas carbon dioxide. All breads get some rise from steam when they are baked. A leavening agent is an ingredient that produces gas in a dough or batter. The gas makes the product rise and gives it a lighter texture. Quick breads usually include either baking powder or baking soda as the leavening agent. When the leavening agent is mixed with a liquid, it produces gas (carbon dioxide) that is captured in the dough or batter. Baking causes the batter or dough to become
Preparing Quick Breads

firm. The open spaces created when the dough rises make the product light and open. Too much leavening makes a quick bread loose and crumbly. Too little makes it heavy. Follow the recipe to get it just right.

• **The most common form of baking powder is double-acting.** It reacts first when mixed with the liquid at room temperature. It reacts again when heated in the oven. Thus, the action is doubled. Be sure to check the date on baking powder to be sure it is fresh. Old baking powder will not react and cannot make a quick bread rise.

• **Another common leavening agent in quick breads is baking soda.** Notice in recipes that contain baking soda, there is always an acid-containing product, such as buttermilk or fruit juice. This acid combines with the soda to produce carbon dioxide. The two ingredients must work together for a quality product. To demonstrate this leavening action, we will blow up a balloon using baking soda and vinegar.

• **Another leavening agent in quick breads is air, including beaten egg whites.** In this case, the quick bread rises because the egg whites have entrapped air that makes the bread rise.

• **The fourth ingredient is the liquid.** Liquid ingredients in a quick bread may include water, milk, buttermilk, juice, mashed or pureed fruit, and other ingredients. When the liquid is added to the dry ingredients, the ingredients form a mixture. The mixture should have a lumpy look, not a smooth look like cake batter. In the oven, the liquid helps the product rise when it gets hot enough to form steam. The liquid in the recipe helps the quick bread have moisture, flavor, and tenderness. It also keeps the bread from getting stale too quickly.

• **The fifth ingredient is sugar.** The amount of sugar in a quick bread recipe varies. Biscuits have no sugar while banana bread may be sweet. In a quick bread recipe, sugar has several important functions. It gives a sweet flavor, helps to tenderize the product, and gives it color and texture. In some quantity recipes, sugar is treated as part of the liquid ingredients. There are many different kinds of sugar used in quick breads. White sugar comes in several size crystals. The size of crystals is noted by the number of X’s on the label. More X’s indicate a finer sugar crystal. Some quick bread recipes include other sweeteners such as honey or molasses. Follow the recipe and do not substitute one sweetener for another unless the recipe is being modified and tested before it is served to students.

• **The sixth ingredient is spices and flavorings.** Depending on the recipe, quick breads may contain one or more spices such as cinnamon or nutmeg. Spices are used in small amounts but they should pack a big punch of flavor. Always measure spices carefully and use only high quality, fresh spices. Since only small amounts are used, the spice needs to give the flavor needed for the recipe. Flavorings include salt, vanilla, lemon extract, and other extracts. Measure the flavoring carefully to have the right taste in the recipe. Other ingredients in a quick bread recipe can also be used to add flavor and texture, such as cheese, corn, bell peppers, grated carrots, fresh or dried cranberries, blueberries, cherries, nuts, and more. Many quick bread recipes provide the correct amounts for added ingredients.

**DEMO:** Demonstrate blowing up a balloon using baking soda combined with vinegar.
NOTE TO INSTRUCTOR: Follow these instructions for activity.
1. Using a funnel, add 1 Tbsp (3 tsp) of baking soda to a balloon (12 inch diameter works well).
2. Fill a 16 ounce bottle with 6 ounces of vinegar.
3. Without dropping the baking soda from the balloon, fit the balloon over the bottle opening.
4. Hold up the balloon and allow the baking soda to fall into the vinegar.
5. Watch as the baking soda mixes with the vinegar to make carbon dioxide and blow up the balloon.
6. Keep the balloon on the bottle for 1 minute. The chemical reaction will slow down allowing you to remove the air-filled balloon.

DEMO: Show participants a box of powdered sugar with 4X and 10X on the front of the box. Discuss the differences. Ask participants if they can tell the difference in sight, taste, or texture.

SAY: All recipes give detailed directions that include the correct steps for the right culinary technique. There are two different culinary techniques used for quick breads. The muffin method is a step-by-step way of mixing muffins, pancakes, waffles, and other batters. The biscuit method is a step-by-step way of preparing rolled, cut biscuits and scones.

DO: Discuss the What Happened to the Quick Bread? Handout found in the Participant’s Workbook.

DO: Refer participants to the handout, USDA Cornbread (B-09) recipe, in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

SAY: Now let’s discuss the steps to making quick breads using the muffin method.
1. Weigh the dry ingredients. Mix the dry ingredients for several minutes to evenly distribute them.

ASK: What is the nutritional benefit of replacing the all-purpose flour with whole wheat flour?

FEEDBACK (Answers may include): The bread could be considered a whole grain if enough whole wheat flour is added.

NOTE TO INSTRUCTOR: The amount of whole wheat flour required to change this recipe to a whole grain has not been calculated.

2. Measure the liquid ingredients in a separate container. Beat the eggs and combine with all other liquid ingredients.
3. Add the liquid ingredients to the dry ingredients. The liquid ingredients should be added all at once.
4. Mix at low speed only long enough to blend ingredients. Mixing should take only 15–20 seconds. If special flavoring ingredients (for example, fruits, nuts, cheese) have been added, mixing may take up to 40 seconds. Be careful not to over mix.
Preparing Quick Breads

5. Pan the batter according to the recipe. Prepare pans by coating with a light oil spray, only on the bottom.

**ASK:** Why should oil spray not be used on the sides of the pan?

**FEEDBACK (Answers may include):** Quick breads use the sides of the pan for additional leavening by “climbing” up the pan sides.

6. Bake at temperature given in the recipe. To adjust the oven temperature given for a conventional oven for a convection oven, reduce the temperature by 25 °F–50 °F and reduce baking time by 25%. When using a convection oven, turn the fan off during the first one third to one half of the total baking time. If a convection oven cooks unevenly, rotate the pans halfway through the baking time.

7. Serve immediately. Remove a quick bread from the baking pans as soon as it is done and serve while hot for the best quality.

8. Store quick breads the right way. When quick breads are not to be served immediately from the oven, cool completely. Store them in airtight containers until time for service. Most quick breads freeze well.

**DO:** Show video clip from *Culinary Techniques: Muffins.*

**DO:** Refer participants to the handout, USDA Baking Powder Biscuits (B-04) recipe, in the Participant’s Workbook. Ask participants to relate the steps outlined below to the recipe.

**SAY:** Next, let’s discuss the steps to making quick breads using the biscuit method.

1. Weigh the dry ingredients. Mix the dry ingredients for several minutes to evenly distribute them.

2. Cut the fat into the dry ingredients. Use the paddle attachment to the mixer and continue until the mixture looks like cornmeal. This will take about 2 minutes.

3. Measure the liquid ingredient. The liquid added to biscuit dough should be cold.

4. Add the liquid to the dry ingredients. The liquid should be added all at once.

5. Mix at low speed only long enough to blend ingredients. Mix at low speed for 10–12 seconds. Turn the mixer on/off about four times. Dough should look “shaggy.”

6. Remove the dough to bench and knead lightly. Knead 15–20 strokes. This should take about 1 minute.

7. Roll to 1/2 inch thickness and cut biscuits. Roll or pat the dough to 1/2 inch thickness.

8. Pan the biscuits. Biscuits can be rolled in a baking pan and cut into squares or cut in the traditional manner and placed on the baking pan. Biscuits can be held from 2–3 hours in the refrigerator until time to bake.

9. Bake at the temperature given in the recipe. To adjust the oven temperature given for a
conventional oven for a convection oven, reduce the temperature by 25 °F–50 °F and reduce baking time by 25%. If a convection oven cooks unevenly, rotate the pans halfway through the baking time.

10. Serve immediately. Remove biscuits from the baking pans as soon as they are done. Serve immediately while hot.

DO: Show video clip from Culinary Techniques: Biscuits.

SAY: 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 a quick bread 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:

1. Substitute another bread item on the serving line. Follow the school district procedure for menu substitutions.

2. Use the quick bread, if possible, in another way in order to avoid wasting the food. Some ways sweet, quick breads can be used include crumbling and adding to puddings, crumbing, and using as a topping for fruits. Cornbread or plain muffins can be used to make turkey or chicken dressing or as bread crumbs.

3. Determine what happened during preparation that caused the poor quality and make plans to correct the preparation next time. Refer to What Happened to the Quick Bread? handout to figure out what happened, why and how it can be corrected next time.

DO: Discuss Quality Score Card for Quick Breads found in the Participant’s Workbook.
Optional Activity: Culinary Application and Practice Activity

NOTE TO INSTRUCTOR: Items needed for this activity are not included in Instructor’s Manual.

Culinary Practice is an activity designed to give school nutrition assistants an opportunity to practice preparing quick breads using the biscuit method or muffin method. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the Culinary Techniques Preparing Quick Breads lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for Preparing Quick Breads. 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 either biscuit method for quick breads or muffin method for quick breads. Review the steps of either culinary technique:
   - Culinary Technique: Quick Breads - Muffin Method
   - Culinary Technique: Quick Breads - Biscuit Method

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the serving line. Use the Quality Score Card for Quick Breads.

Optional Additional Suggestions:
- Demonstrate preparing a quick bread using a USDA recipe for quick breads.
Preparing Seasonings

Time: 1 hour

National Food Service Management Institute
The University of Mississippi
## Lesson-at-a-Glance

**60 minutes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1:</strong> Improve the healthfulness of foods served to students.</td>
<td><strong>Task</strong></td>
</tr>
<tr>
<td><strong>Objective 2:</strong> Improve the quality of foods served to students.</td>
<td><strong>Culinary terms</strong> Review culinary terms with participants.</td>
</tr>
<tr>
<td><strong>Purchasing and storing</strong> Discuss purchasing seasonings. <strong>Discuss storage recommendations.</strong></td>
<td><strong>Seasoning selection and storage</strong> Show video clip from <em>Culinary Techniques: Seasoning Selection and Storage</em></td>
</tr>
<tr>
<td><strong>Menu planning</strong> Discuss menu planning recommendations. <strong>Discuss purchasing recommendations.</strong></td>
<td><strong>Objective 3:</strong> Improve the appeal of foods served to students.</td>
</tr>
<tr>
<td><strong>Use seasonings</strong> Discuss the basic principles of seasonings.</td>
<td><strong>Use seasonings</strong> Show video clip from <em>Culinary Techniques: Usage.</em></td>
</tr>
<tr>
<td><strong>Spices</strong> Review and discuss Spices chart. <strong>Conduct spice taste test.</strong></td>
<td><strong>Herbs</strong> Review and discuss Herbs chart. <strong>Conduct herb taste test.</strong> <strong>Demonstrate how to remove the zest from an orange.</strong> <strong>Demonstrate how to chiffonade fresh basil.</strong></td>
</tr>
<tr>
<td><strong>Enhancing flavor of foods</strong> Discuss general rules for enhancing flavor during food preparation.</td>
<td><strong>Blends</strong> Review Common Blends of Herbs and Spices chart. <strong>Conduct blends taste test.</strong></td>
</tr>
<tr>
<td><strong>Enhancing flavor of foods</strong> Discuss seasoning tips. <strong>Demonstrate fresh fennel.</strong> <strong>Discuss and review how to enhance the flavor of salad dressing served with fruit.</strong> <strong>Discuss and review how to enhance the flavor of salad dressing for baked potatoes.</strong> <strong>Discuss and review enhancing the flavor of honey lemon chicken with a marinade.</strong> <strong>Discuss and review enhancing the flavor of ground beef using seasoning blends.</strong></td>
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<td>Topic</td>
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<tr>
<td>Enhancing flavor of foods</td>
<td>Show video clip from <em>Culinary Techniques: Enhancing Flavors.</em></td>
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</tbody>
</table>
Preparation Checklist

**Instructions:** Use this preparation checklist to get ready for the training session. Keep track of your progress by checking off tasks as they are completed.

<table>
<thead>
<tr>
<th>Lesson Tasks</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve equipment and gather lab supplies</td>
<td></td>
</tr>
<tr>
<td><strong>Materials needed:</strong></td>
<td></td>
</tr>
<tr>
<td>3 to 4 Spices from Spice chart (enough for taste test)</td>
<td></td>
</tr>
<tr>
<td>3 to 4 Herbs from Herb chart (enough for taste test)</td>
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<tr>
<td>Tasting spoons - 2 per participant</td>
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<tr>
<td>Tasting forks - 1 per participant</td>
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<tr>
<td>Zesting tool-Microplane or fine grater</td>
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<tr>
<td>1 Orange</td>
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<tr>
<td>1 Small container of salt free seasoning blend</td>
<td></td>
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<tr>
<td>1 Small container of seasoning blend with salt</td>
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<tr>
<td>Cutting board</td>
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<tr>
<td>Chef’s knife</td>
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<tr>
<td>1 Bunch fresh basil</td>
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<tr>
<td>1 Bulb fresh fennel</td>
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<tr>
<td>Small containers for fennel aroma activity &amp; zest</td>
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<tr>
<td>TV/DVD combo on cart</td>
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<tr>
<td><em>Culinary Techniques</em> video segments from <a href="http://www.nfsmi.org">www.nfsmi.org</a></td>
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<tr>
<td>Nametags, optional</td>
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**Make copies of Participant’s Workbook**
Preparing Seasonings
Instructor’s Script

SAY: Welcome to the seasonings section of the Culinary Techniques training. In this lesson, we will cover the following objectives:
1. Improve the healthfulness of foods served to students.
2. Improve the quality of foods served to students.
3. Improve the appeal of foods served to students.

SAY: We would like you to understand the main ideas in this lesson, including:
- The way food is seasoned can enhance the flavor.
- Seasoning can be added by following the recipe.
- The creative use of seasoning can enhance flavor and create a new recipe.
- There are five basic types of seasonings.
- There are general rules to be followed in the use of seasoning.
- Experience or experimenting is required to learn appropriate seasoning and food combinations.

DO: Refer to the important terms related to this lesson in the Participant’s Workbook.
- **Bouquet Garni (Bo-Ka GAHR-Nee):** A selection of herbs that are wrapped with kitchen twine and put in the food to season it during cooking. It is removed when the desired level of seasoning has been achieved. The twine is used to remove the herbs.
- **Culinary:** Relating to the kitchen or cooking. An example of this is to describe food preparation skills as culinary skills.
- **Culinary Technique:** A step-by-step food preparation method.
- **Sachet D’Epices (Sa-SHA Day-Pees):** A selection of herbs and spices tied in a cloth bag usually made of cheese cloth. It is used for flavoring soups, stews, and sauces and is removed when cooking is complete.
- **Caramelize:** The heating of a seasoning food until a golden to brown color is developed and the characteristic flavor is developed.
- **Marinade:** A mixture of oil, acid foods, and seasonings used to flavor meats and vegetables.
- **Mise en Place (meez-un-plahss):** A French term used by chefs and other culinary professionals to describe all the different steps 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.
- **Mirepoix (MIHR-pwah):** A mixture of chopped vegetables used in flavoring soup or roasts; generally includes 50% onions, 25% carrots, and 25% celery.
- **Pungent (PUN-jent):** A sharp taste, biting. Most foods that are pungent are usually bitter to the taste.
- **Stock:** A flavorful liquid prepared by simmering meat, poultry, fish carcasses, and/or vegetables in water until the flavor is extracted.
SAY: Spices and herbs should be considered important ingredients in your recipes. The Federal Standards of Identity define what can be included in a spice or herb of a specific name. These standards are in Title 21 Code of Federal Regulations. Because there are no federal grade standards, consider prior approval of brands to be certain that the supplier is reliable when purchasing quality spices and herbs for your recipes.

SAY: The bid/price quote instructions or the food description should require that the code for the date of manufacture be provided with the prices. Give the code to the person who receives deliveries at the site or warehouse and ask the receiver to determine how much of the shelf life remains. In most school nutrition settings the spice or herb is placed on the bid list and each preparation site orders as needed. With this practice, small spice or herb orders are placed each week. Changing the purchasing system to obtain prices for spices and herbs twice each year is more efficient. This process also assures product freshness. Purchasing spices and herbs before school starts and in January avoids the problem of storing the product in a hot storage area while the kitchen is closed. Reputable manufacturers will quote prices in the same general range. All prices should be checked for variance from other prices offered. Investigate differences in the price over 5% to determine the quality differences.

NOTE TO INSTRUCTOR: Some school nutrition programs purchase spices and herbs using an annual bid system.

SAY: Fresh herbs can be purchased with the other fresh produce items. A small produce distributor may be encouraged to stock those fresh herbs you have chosen to use. Providing the quantity needed and the frequency of use will encourage the produce distributor to stock these items.

SAY: For optimal quality and safety, spices and herbs should be stored properly. Fresh herbs should be refrigerated to prevent spoilage. Place fresh herb bouquets in containers and place in the refrigerator. Loosely wrap the bouquet in film wrap to extend the shelf life of the fresh herb. Smaller sprigs and individual leaves should be wrapped in a paper towel or placed in a food-safe plastic bag. When stored properly, fresh herbs will keep up to four days in the refrigerator.

NOTE TO INSTRUCTOR: Fresh herbs should not be washed prior to storing in the refrigerator.

SAY: Dried herbs and spices should be stored in a cool, dry place in an air-tight container. Herbs and spices provide flavor because they contain oils that break down faster if they are exposed to air, light, and warm temperatures. The majority opinion is that dried herbs and spices will retain their flavor for 6 months to 1 year. Record the date of delivery on all dried spice and herb containers. Discard a dried spice or herb that has developed a flat aroma. Some school nutrition assistants are hesitant to discard old seasonings because of their cost. Remember serving customers foods that taste good is what is most important.

DO: Show video clip from Culinary Techniques: Seasoning Selection and Storage.
Preparing Seasonings

SAY: Menu planning practices should be focused on creating healthy school meals. When planning healthy school meals to control nutritional content, use a low sodium broth or stock for additional flavor in soups, sauces, and cooked grains such as rice and quinoa. Experiment with herbs, spices, and lemon for seasonings to use in place of part of the salt.

SAY: To prepare healthy school meals, you need to purchase healthy school foods. For example:
- Check for the amount of sodium in purchased items.
- Purchase garlic, onion, and celery powders or granules, not garlic, onion, or celery salts that have more sodium.
- Purchase seasoning mixes that do not contain monosodium glutamate (MSG) or where salt is not the primary ingredient.
- Look to local farmers as an alternative to purchasing fresh produce. Check out www.farmtoschool.org for more information.

ASK: What do you want to hear when your customer has finished a meal?

FEEDBACK (Answers may include): “The meal was delicious. It tasted so good.”

SAY: Appropriate seasonings can make it happen. Exploring the exciting world of seasonings and how to use them gives school nutrition assistants wonderful opportunities to express their creativity. As fat, salt, and sugar are reduced in school menus to meet the goals of the Dietary Guidelines, seasonings can help replace lost flavors. The exciting new flavors that can be introduced are limited only by our skill and creativity. Seasonings can be used by school nutrition assistants to enhance the flavor of food in two ways. First, follow the standardized recipe. Mix the seasonings with the food at the exact time specified and use the food preparation technique (browning, caramelizing, and marinating) specified. Secondly, create a new recipe by experimenting with the addition of new herbs and spices.

SAY: Now, let’s discuss the basic principles of seasonings. The general term “spices” is commonly used to mean spices, herbs, and dried vegetables used for seasoning. Food preparation techniques such as caramelizing and marinating are also methods of adding flavor to foods. Fruit juices are also flavoring agents. We do not think of marinating or fruit juice as a spice. Successful school nutrition assistants’ creativity in seasoning foods is not limited to spices.

ASK: What are practical school nutrition ingredients or techniques you can use to effectively flavor foods?

FEEDBACK (Answers may include): Spices, herbs, seasoning foods, additional seasonings, caramelizing, browning, etc. See below.
- **Spices** – Allspice, cardamom, cinnamon, cloves, ginger, mace, mustard, nutmeg, paprika, peppercorns, and red pepper.
- **Herbs** – Anise seed, basil, bay leaves, caraway seed, celery seed, chives, cilantro (coriander leaves), coriander, cumin, dill, fennel seed, marjoram, mint, oregano, parsley, poppy seed, rosemary, sage, savory, sesame seed, tarragon, thyme, and turmeric.
Preparing Seasonings

- **Seasoning foods** – Bell peppers (green, red, yellow), hot chili pepper such as Jalapeno pepper, and many other varieties of pepper; carrots, celery, garlic, lean smoked meat, leek, onion, and shallots
- **Additional seasonings** – Juices: apple, lemon, lime, orange, pineapple; orange and lemon zest; meat bases, vegetable stock, olive oil, hot sauce, soy sauce, Worcestershire sauce, smoke flavor concentrate, and sesame seed oil.
- **Preparation techniques** – Browning, caramelizing, roasting, and marinating are simple culinary techniques that add flavor.

**SAY:** In summary, seasonings added to a food during preparation enhance the natural flavor of the food. This enhancement can be achieved in five different ways. You can add spices, herbs, seasoning foods, and/or additional seasonings to your recipes. Also, don’t forget preparation techniques such as browning, caramelizing, and marinating add flavor, too.

**DO:** Show video clip from *Culinary Techniques: Usage.*

**SAY:** Spices are prepared from the roots, buds, flowers, fruits, bark, or seeds of plants.

**DO:** Discuss the spices listed on the chart in the Participant’s Workbook.

**NOTE TO INSTRUCTOR:** Prepare 3 to 4 spices in containers for taste testing. To prevent cross-contamination provide tasting spoons, or use a cleaned and sanitized serving utensil. For more information, review *The Flavor Bible* by Karen Page and Andrew Dornenburg.

**SAY:** Herbs come from the leaf or soft portions of plants.

**DO:** Discuss the herbs listed on the chart in the Participant’s Workbook.

**DEMO:** Prepare 3 to 4 herbs in containers for taste testing. To prevent cross-contamination, provide tasting forks or use a cleaned and sanitized serving utensil. For more information, review *The Flavor Bible* by Karen Page and Andrew Dornenburg.

**DEMO:** Demonstrate how to chiffonade fresh basil.

**SAY:** Other seasoning foods are items that are added for additional flavor. This may include:
- sweet bell peppers (green, red, yellow),
- hot chili peppers,
- Jalapeno peppers and many other varieties of peppers,
- carrots,
- celery,
- onions,
- garlic,
- lean smoked meats,
Preparing Seasonings

- leeks,
- shallots, and
- citrus zest or peel. Zest is the grated outer peel of any citrus fruit. The most common are lemon and orange. The white inner peel should not be used as it imparts a bitter flavor.

**DEMO:** Using a fine grater or microplane zesting tool, demonstrate how to remove the zest from an orange. Place the orange zest in several small containers and allow participants to smell the zest.

**SAY:** The orange should be washed well to remove any pesticides, if it is not an organically grown orange.

**SAY:** There are general rules for enhancing flavor during food preparation. The development of flavor through the use of seasonings is a creative process. Always start with a small amount and increase until the product has an acceptable taste and aroma. In general start with 1/4 teaspoon per pint or pound of a food product. When using garlic powder or pepper in recipes, start with only 1/8 teaspoon. Use two times as much of a fresh herb or spice as of the dried form (for example: 2 teaspoons of fresh basil equals 1 teaspoon dried whole leaf basil). Use twice as much of a dried leaf herb as of the ground form (for example: 1/2 teaspoon dried thyme leaves equals 1/4 teaspoon ground thyme). A total of 1–3 tablespoons herbs and spices per 50 portions of a recipe is generally adequate. In general, double the spices and herbs in a recipe when increasing from 50 to 100 servings. Increase the spice or herb by 25% for each additional 100 servings. Remember, heat builds in recipes quickly. Be especially careful when adding hot seasonings such as red pepper (cayenne), mustard, cloves, and peppercorns (red, white, pink, or black).

**SAY:** Gourmets (foodies) consider the true value of a food is its flavor. Infusions, marinades, and reductions are processes to help capture flavor. To create an infusion, you must steep (infuse) herbs and spices in vinegars, oils, stocks, and juice so the flavor will be enhanced before the liquids are used in recipes. To create a marinade, submerge (soak) foods in the mixture of ingredients by basting or brushing the food while it is being cooked, or putting a dry or wet rub on the food before the cooking is started. A reduction enhances flavor through concentration. A liquid is reduced by boiling away some of the liquid. To reduce fruit juice concentrate, decrease the amount of water before it is added to a recipe.

**SAY:** Consider short cuts to use spices and herbs as seasoning. Blends of seasoning foods, spices, and herbs can save time when assembling ingredients for food preparation. Some blends have been in use for a long time. The chart below identifies the ingredients in some of the blends you use in your kitchen.

**DO:** Review Common Blends of Herbs and Spices chart in the Participant’s Workbook.

**SAY:** Many spice and herb mixtures can be purchased commercially, but school food service assistants can make their own blends to reduce the number of seasonings in inventory. If commercial blends are purchased, the amount of salt included should be evaluated. The *Dietary Guidelines* recommend moderate use of sodium (salt).
DO: Read the ingredient list of a commercially prepared spice blend with salt, and one without salt.

NOTE TO INSTRUCTOR: Mrs. Dash products are salt free. Remind participants that the order of ingredients helps you determine how much of that ingredient is in the product. For example: if the first ingredient is salt or sodium it means there is more salt or sodium in the product than any other ingredient.

DEMO: Place both types of blends (with salt and without salt) in small containers. Provide spoons for each participant to avoid cross-contamination. Allow participants to taste test the seasoning blends.

NOTE TO INSTRUCTOR: New school meal guidelines require school nutrition programs to significantly reduce sodium over the next ten years.

SAY: Time, practice, and patience will help you develop a sense of how to build and blend flavors effectively through seasoning. Each spice, herb, or additional food has its own flavoring strength. Flavors will vary with different foods, other seasonings, and the form of the herb or spice. Be creative with the use of seasoning, but do it gradually. Learn your customers’ taste preferences. All changes made to recipes to enhance the flavor should be student tested. As we age, our taste buds lose sensitivity; therefore, it takes more seasoning for adults to taste the flavor. What may be right for the adult taste could turn off student customers.

SAY: School nutrition assistants can obtain students’ opinions on the taste of food in two simple ways. Choose a select group of students, make a small portion of a new recipe, ask students to taste and give their opinion. Prepare a small portion of a new recipe, place the food on the serving line and ask those students who select the new item to rate the taste of the food.

SAY: Learning to use a wide variety of seasonings requires experience. Let’s discuss seasoning tips to help us expand our experience with a wide variety of seasonings.

1. Citrus juices, such as lime, orange, or lemon zest contrast with milder fruits like bananas.
2. Spices like cinnamon complement apple slices.
3. Sweet herbs like mint, nutmeg, ginger, or anise complement citrus fruit such as orange or grapefruit slices.
4. Fresh herbs like savory, chopped basil or cilantro can be added directly to a green salad.
5. Salads with strong-flavored ingredients call for peppery dressings. Try some of these additions to a basic dressing:
   a. Peppery herbs: red pepper, black pepper, mustard, and paprika
   b. Strong herbs: oregano, tarragon, chives, and dill
   c. Seasoning foods: chopped garlic, grated onion, or chopped pepper
   d. Additional seasonings: hot sauce, Worcestershire sauce, garlic powder, or onion powder
6. For delicately flavored vegetables like mashed potatoes, add a sweet spice like nutmeg to complement the flavor; add a savory spice like oregano, chives, or dill to totally change the flavor.
Preparing Seasonings

7. For strong-flavored vegetables use peppery spices like basil, black pepper, and savory.
8. Use less salt to season fries; try Cajun seasoning blend to enhance flavor.
9. For baked fruits, use dessert type spices such as nutmeg, cloves, or apple pie spice blend.
10. A mix of ginger, soy sauce, and pineapple juice makes a good light, sweet, moist marinade for poultry.
11. Cayenne pepper, garlic, coriander, cilantro, black pepper, cumin, and lime juice make a heavier, peppery, moist marinade for a Caribbean taste.
12. For an Italian taste, use garlic, white pepper, and an Italian blend in a savory, moist marinade.
13. Blends of dry spices can be rubbed into cuts of meat the day before cooking as a dry marinade. The flavors are absorbed into the meat before and during cooking.
14. Browning or grilling meat is a subtle form of seasoning that adds a distinct flavor, color, and aroma.
15. Herbs and seeds like caraway, dill, poppy, and sesame can be baked into bread or sprinkled on top for a nice accent.
16. Use cinnamon and nutmeg in raisin bread.
17. Use garlic and ground peppercorns in garlic sticks.
18. Add chopped onions to dough to create onion rolls.
19. Cook rice in stock or flavored broth instead of water to enhance flavor.
20. Spice up your spaghetti sauce with fennel to replace some of the Italian sausage taste.

DEMO: Chop a bulb of fresh fennel and place in several containers. Allow participants to smell the aroma of fresh fennel.

21. The flavor of ground herbs can be lost quickly. Ground herbs should be added just before the cooking of the food is complete. Adequate time should be allowed for the dried herb to absorb enough moisture to release the flavor.
22. Whole spices are best suited to long cooking recipes. Whole spices should be added as soon as cooking begins to obtain maximum flavor enhancement. Whole spices and herbs (fresh and dried) should be removed before the food is served. The use of a sachet d'epices makes removal of these whole herbs and spices easy.
23. In a fruit recipe, a general rule is to increase the spice by 50% and decrease the sugar by 50%. The spice enhances the flavor and less sugar is required.
24. Sesame seed should be toasted before use unless it is used as a topping that will be exposed to the direct heat of the oven.
25. Dry mustard has no smell. The aroma develops when it is mixed with a cold liquid. Allow 10–15 minutes for the full flavor to develop.
26. The flavor of seasonings (especially dried herbs) tends to become more intense in a food over time. If a food (for example, chili or spaghetti sauce) is cooked the day before and reheated for serving, this preparation technique should be taken into consideration when deciding how much seasoning to use. The longer a food is held after preparation the more the flavors have an opportunity to fuse, mellow, and develop a full, rich taste.

27. For cold foods such as salad dressings and cold salads, add the seasoning several hours in advance to allow the flavors to develop. When adding additional seasonings to salad dressing, make the additions the day before and allow the flavor to develop overnight.

28. In quick-cooking foods such as vegetables, add the herbs at the start of cooking.

29. In slow-cooking foods such as soups or stews, add herbs in the final 15–20 minutes.

30. To prepare fresh herbs for use, wash in cool water, and discard any blemished leaves. The herbs are ready for use in a bouquet garni. If the fresh herbs are to be used chopped, the woody stems should be removed and the fresh herb should be chopped to the size appropriate for the food.

SAY: Now, let’s discuss how to enhance the flavor of salad dressing served with fruit.

1. Prepare Honey Dressing according to standardized recipe, *USDA Recipes for Schools* E-20 in the Participant’s Workbook.
2. Identify the fruits in the salad on which the dressing will be used.
3. Decide whether you want to complement (blend with) or contrast with the flavor of the fruit.
   - A contrast example: citrus juices or zest added to the dressing will contrast nicely with milder fruits like bananas.
   - A complement example: light spices - like cinnamon - complements apple slices nicely, or sweet herbs like mint complement citrus fruit such as orange slices.
4. Experiment by seasoning to taste.
5. Prepare the day before and refrigerate overnight to allow the flavors to fully develop.
6. Write down the changes you have made to create this new standardized recipe.
7. Serve the food to your students. Talk to the students about how the food tasted and smelled.
8. Decide if the change is acceptable to students. If the product is acceptable you now have a new recipe. If the change is not acceptable to students, repeat steps 4, 5, 6, and 7.

SAY: Next, we will review how to enhance the flavor of salad dressing for baked potatoes.

2. Identify the dried herbs in the recipe that could be replaced with a fresh herb or seasoning food. Remember that chives, parsley, onions, and garlic can be purchased and used fresh.
3. Review the rule for quantity of fresh seasoning that should be used in a recipe to replace the dried seasoning. The general rule is to use two times as much fresh seasoning as dried.
4. Prepare the recipe according to the directions, leaving out the dried seasonings you have selected to replace with fresh.
5. Add 2/3 of the quantity of fresh seasonings to the recipe and refrigerate overnight.
6. Taste the new salad dressing and decide if the remaining 1/3 of the fresh seasonings is needed. If needed, add the remaining fresh seasonings and refrigerate until meal service time.

7. Write down the changes you have made to create the new standardized recipe.

8. Serve the food to your students. Talk to the students about how the food tasted and smelled.

9. Decide if the change is acceptable to students. If the product is acceptable you now have a new recipe. If the change is not acceptable to students, repeat steps 2, 3, 4, 5, and 6.

**SAY:** Next, we will discuss enhancing the flavor of honey lemon chicken with a marinade.


2. Remove the skin from the thighs.

3. Use your creativity to enhance the flavor of this product by creating a marinade for the chicken. Approximately 1 quart of marinade will be required per 50 servings. Potential ingredients for the marinade are pineapple juice, soy sauce, fresh garlic, and cilantro, if available. Start with 3 cups pineapple juice, 1 cup of soy sauce, 2 cloves of chopped fresh garlic, and 1/4 cup of chopped fresh cilantro. Taste the marinade and adjust the seasoning, if necessary.

4. Place the skinless chicken thighs in a food container and pour the marinade over the product. Refrigerate for a minimum of 2 hours or overnight.

5. Drain the marinade from the chicken and continue preparation according to the instructions on recipe. Be certain the marinade is discarded and not served or saved for future use.

6. Write down the changes you have made to create this new standardized recipe. Serve the food to your students. Talk to the students about how the food tastes and smells.

7. Decide if the change is acceptable to students. If the product is acceptable you now have a new recipe. If the change is not acceptable to students, repeat steps 2, 3, 4, and 5. It may be necessary to wait until chicken is on the menu again to revise the new recipe.

**SAY:** Finally, let’s review enhancing the flavor of ground beef using seasoning blends.

1. Choose your favorite ground beef recipe.

2. Decide what flavor you want to develop in the ground beef. Some suggestions are on *USDA Recipes for Schools* G-01 (Italian Seasoning Mix) and the seasoning blend chart in this module.

3. Prepare the ground beef according to the recipe directions. Add 1/4 cup of the seasoning blend selected per 5 lbs of ground beef. Cook according to the recipe directions. Taste and determine if the flavor developed is acceptable. The amount of seasoning blend required to fully develop the flavor will vary based on the blend selected and the food it is being mixed with. Remember the rule, start with a small amount and add until the desired flavor is achieved.

4. Complete the ground beef dish using the recipe selected.

5. Write down the changes you have made to create this new standardized recipe.

6. Serve the food to your students. Talk to the students about how the food tasted and smelled.
7. Decide if the change is acceptable to students. If the product is acceptable you now have a new recipe. If the change is not acceptable to students, repeat steps 2, 3, and 4.

**DO:** Show video clip from *Culinary Techniques: Enhancing Flavors.*

**Optional Activity: Culinary Application and Practice Activity**

**NOTE TO INSTRUCTOR:** Items needed for this activity are not included in Instructor’s Manual.

Culinary Practice is an activity designed to give food service assistants an opportunity to practice enhancing the flavor of foods with seasonings. Use the Culinary Practice Score Card for the activity. Select suggested recipes from the *Culinary Techniques: Seasonings* lesson for this activity.

1. School nutrition 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 school nutrition assistants should work together to complete the Culinary Practice.

2. The school nutrition manager and assistants should discuss the Culinary Practice for enhancing the flavor of foods with seasoning. 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 or modified for the practice. The recipe should use one of the culinary techniques described in this lesson. To review the steps of the culinary techniques, refer to:
   - Culinary Technique: Enhancing the Flavor of Salad Dressing for Fruit
   - Culinary Technique: Enhancing the Flavor of Ranch Dressing for Baked Potatoes
   - Culinary Technique: Enhancing the Flavor of Honey Lemon Chicken with a Marinade
   - Culinary Technique: Enhancing the Flavor of Ground Beef with a Seasoning Blend

4. The school nutrition manager and assistants who prepared the product will evaluate the product before it is placed on the service line. Use the Quality Score Card* for enhancing the flavor of foods with seasonings. Use the Quality Score Card for the product being prepared. (See Culinary Techniques lessons for examples.)

* The Culinary Practice Score Card and the Quality Score Card are not included in this lesson.*