# Orientation to School Nutrition Management

## Food Production and Operation Management

## Instructor's Manual

**Time: 2 ¼ hours**

**Key Area 2: Operations**
**Learning Code: 2000**

**2017**

# Institute of Child Nutrition
## The University of Mississippi

The Institute of Child Nutrition was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford and is operated in collaboration with The University of Southern Mississippi in Hattiesburg. The Institute operates under a grant agreement with the United States Department of Agriculture, Food and Nutrition Service.

**PURPOSE**
The purpose of the Institute of Child Nutrition is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

**MISSION**
The mission of the Institute of Child Nutrition is to provide information and services that promote the continuous improvement of child nutrition programs.

**VISION**
The vision of the Institute of Child Nutrition is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

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**For more information, please contact helpdesk@theicn.org.** 5/2017

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# Background Information

**Note to Instructor: The purpose of the background information section is to help you become familiar with the context of the lesson. It is not a part of the lesson detail.**

The purpose of this lesson is to explore the managerial aspects of food production and to look at the art and science of food preparation. The production and service of nutritious, high quality, economical meals that are acceptable and enjoyable to student customers are as much the core function of school nutrition operations today as they were in 1946 when President Harry S. Truman signed the National School Lunch Act and said, "Nothing is more important in our nation's life than the welfare of our children, and proper nourishment comes first in attaining this welfare." Satisfying student customer needs and wants and meeting USDA nutritional guidelines while maintaining a fiscally sound program is the goal and responsibility of school nutrition directors. Perhaps now, more than any time since the program began, it is imperative that school nutrition directors examine their beliefs, procedures, and training in the area of food production. In the early days of the National School Lunch Program, most meals were prepared onsite and from scratch. Schools used a lot of locally grown products in menus and food preparation, and the majority of schools only offered one menu choice. Milk was a requirement for every meal.

As the years have gone by, there have been many changes that have affected the way schools prepare and serve meals. Some of the changes were good, and some were not so good. These changes have had a major impact on the customers' food habits as well as their health. Most children and even their parents now prefer fast foods to a traditional type meal. Now is the time for new directors to be aware and commit to preparing and serving healthier choices in school meals.

While the quality of food service is ultimately in the hands of the site manager and staff, the director is responsible for the nutritional and financial integrity of the program, setting quality standards, providing resources that enable staff to produce the meal according to those quality standards, training staff in the techniques that produce school meals that meet the *Dietary Guidelines for Americans* (DGA), and monitoring the program at the school sites and central office to meet USDA regulations.

## Role of the School Nutrition Director

A successful director must be able to do the following.

- Understand the various elements of the menu.
- Guide the development and daily use of production standards.
- Ensure implementation of quality standards for foods that meet the nutrition goals of the program and the taste preferences of the student customers.
- Understand the various culinary techniques, recipe development, and modification processes necessary for the production of healthful, student-acceptable school meals.

Directors are challenged to prepare more foods onsite and to move away from only serving prepared items. As this happens, the school nutrition director must offer training in food preparation, provide additional cooking and holding equipment, and make other operational changes. Food quality is ultimately in the hands of the site-based manager and staff.

# Functional Areas and Competencies

### Functional Area 3: Food Production and Operation Management

**Competency 3.1:** Develop a management system to ensure high standards for quality food production.

**Competency 3.2:** Establish operational systems for managing food production and service.

**Source:** *Competencies, Knowledge, and Skills for District-Level School Nutrition Professionals in the 21st Century* available on the ICN website at www.theicn.org.

# Lesson Objectives

At the end of this lesson, participants will be able to accomplish the following:

1. Describe how the principles of food production impact food quality.
2. List the principles of developing and using standardized recipes.
3. Describe the importance of accurate measurement in food production.
4. Identify procedures for documenting and evaluating the amount of food planned, prepared, and served.
5. State the importance of production scheduling to achieve operational goals.
6. List food quality standards that ensure quality food production.

# Lesson-at-a-Glance

| Time Allowed | Topic | Activity | Materials |
|---|---|---|---|
| 10 minutes | • Introduction to lesson<br>• Openers | • Welcome<br>• Pre-Assessment<br>• Change<br>• Role of the school nutrition director | • Participant's Workbook<br>• Pre-assessment<br>• Flip chart<br>• Markers |
| **Objective 1: Describe how the principles of food production impact food quality.** | | | |
| 15 minutes | • Food production system<br>• Principles of food production | • Principles of food production | • Participant's Workbook |
| **Objective 2: List the principles of developing and using standardized recipes.** | | | |
| 20 minutes | • Reasons for using a standardized recipe<br>• Standardized recipe parts<br>• Recipe adjustment | • Definition of a standardized recipe<br>• Standardized USDA recipe<br>• Factor method for recipe adjustment | • Participant's Workbook<br>• Standardized recipe<br>• Calculators |
| **Objective 3: Describe the importance of accurate measurement in food production.** | | | |
| 10 minutes | • Weights and measurements | • Weights and measures | • Participant's Workbook<br>• *Tips for Quality Food Preparation* and<br>• *Basics At A Glance* Posters<br>• Measuring tools |
| **Objective 4: Identify procedures for documenting and evaluating amounts of food planned, prepared, and served.** | | | |
| 30 minutes | • Production record requirements | • Food production record | • Participant's Workbook |

| | | | |
|---|---|---|---|
| **Objective 5: State the importance of production scheduling to achieve operational goals.** | | | |
| 10 minutes | • Work production schedule<br>• Service line procedures | • Daily work schedule for food production and service<br>• Cleaning schedule<br>• Service line schedule | • Participant's Workbook |
| **Objective 6: List food quality standards that ensure quality food production.** | | | |
| 30 minutes | • Culinary techniques<br>• Monitoring | • Tips for quality food preparation<br>• Food quality and performance assessment sheet | • Participant's Workbook |
| 10 minutes | • Follow-up suggestions<br>• Lesson evaluation | • Post-Assessment<br>• Administer evaluation | • Post-Assessment<br>• Evaluation form |
| **135 minutes = 2 hours and 15 minutes** | | | |

# Preparation Checklist

**Instructions:** The following tasks are necessary for presenting this lesson. Assign each task to a specific person and determine the date that each task must be completed. Keep track of the progress by recording information on the tracking form and checking off tasks as they are completed.

| Task | Person Responsible | Completion Date | √ |
|---|---|---|---|
| **Reserve equipment and gather supplies as needed for use on the day of class (6 weeks prior).**<br><br>**Instructor Manual**<br>Roster of participants attending for instructor<br><br>Participants' sign-in sheets<br><br>Pre/Post-Assessment<br><br>**List of equipment and supplies needed**<br>Microphone (preferably wireless)<br><br>Computer to present slides and DVD<br><br>Projector and screen<br><br>Wireless presenter device and laser pointer<br><br>Flip chart paper (self-adhesive strip sheets)<br><br>Painter's tape (do not use masking tape)<br><br>Markers (flip chart)<br><br>Calculators<br><br>Pens, pencils, note paper, highlighters, self-adhesive notes, page markers, index cards (each table)<br><br>Name tags and table tents | Instructor | | |
| **Participants' Workbooks**<br>Agenda, roster of presenters/participants, and handouts | | | |
| **Evaluation** (lessons and/or overall for each participant) | | | |

# Lesson Plan

## Introduction

**SAY:**

Welcome to Food Production. The production and service of nutritious, high quality, economical meals that are acceptable and enjoyable to student customers are as much the core functions of school nutrition operations today as they were in 1946 when President Harry S. Truman signed the National School Lunch Act. However, there have been many changes that impact the way we produce food for students in today's school nutrition programs.

## Openers

**DO:**

**(Workbook Activity) Change**

***Instructor's Note:*** *Write the word "**change"** on a flip chart.*

**ASK:**

Can you think of specific changes over the years that affect the way schools prepare and serve meals? List at least 5 changes in your Participant's Workbook. *(Allow time)* Will some of you share your ideas? *(Allow participants to volunteer answers*. *As participants suggest changes, have someone record the changes.)*

**FEEDBACK:**

*Include the following points if not mentioned by participants:*

- Changes in society and lifestyles, including the emergence of fast food; multiple choices of places to eat; a greater variety of food to eat; and availability of more processed foods have had a major impact on food production in schools. The results are fewer onsite produced foods and an increase in highly processed, high-sodium, and sometimes higher fat menu items.

- Standards for reimbursable meals have been implemented that require schools to offer meals that meet the nutrition principles of the *Dietary Guidelines for Americans* (DGA). Often this necessitates the skillful use of flavor enhancers to compensate for less sugar, salt, and fat in school meals and has increased costs for school nutrition programs.

**SAY:**

These changes have had a major impact on the customers' food habits as well as their health. Food preferences of children have changed from eating more traditional meals to fast foods. This has put a greater focus on childhood obesity and the school's role in helping to reverse the trend. Today, there is a move throughout the nation to improve the diet quality of children, and schools are expected to play a major role. It is important for the director to work with the school nutrition team to improve the nutritional quality of the food produced in your school district and to reverse the obesity trend.

**DO:**

**(Workbook Activity) Role of the School Nutrition Director**

**ASK:**

How do you see your leadership role as the school nutrition director in the area of food production? (*Pause and allow one or two comments.)*

**SAY:**

In your Participant's Workbook, turn to the ***Role of School Nutrition Director*** worksheet and take a few moments to read these responsibilities. As you read, give yourself a rating on each responsibility. Give yourself a 5 if you feel you know just about everything related to that area or feel you can perform the responsibility easily. Give yourself a 1 or 2 if you feel you are a beginner or have a lot to learn. And of course you can rate yourself anywhere in between. *(Pause to give time to do this.)*

## School Nutrition Director Rating System

| Role of School Nutrition Director | Rating 1-5 |
|---|---|
| 1. Sets quality standards for food prepared and served, and provides guidance to ensure meals are prepared according to those standards. | |
| 2. Understands culinary techniques, recipe development, and modification processes necessary for the production of healthful, student-acceptable school meals. | |
| 3. Plans menus in compliance with USDA criteria and generally accepted principles of menu planning. | |
| **Role of School Nutrition Director** | **Rating 1-5** |
| 4. Prepares specifications and purchases food consistent with menu plan. | |
| 5. Ensures that standardized recipes are available and used. | |
| 6. Develops safety plan and trains staff in the implementation of the plan and in preparing food. | |
| 7. Pre-costs menus. | |
| 8. Allots labor hours to schools by determining number of personnel needed to prepare and serve meals at each site. | |
| 9. Trains managers to use appropriate forecasting techniques for determining quantity of food to be prepared. | |
| 10. Trains managers to prepare and monitor use of production records. | |
| 11. Provides resources including equipment and supplies necessary for preparing quality food. | |
| 12. Provides an ongoing training program for all school-based personnel in the techniques necessary to ensure production of school meals that meet the *Dietary Guidelines for Americans.* | |
| 13. Provides regular supervision, coaching, and monitoring of the food production process. | |
| 14. Attends professional staff development seminars and conferences to learn current regulations that impact food production techniques. | |

**ASK:**

Did any of you get a 5 on all of the responsibilities? *(Pause for discussion.)* You may want to refer to this document as we discuss the lesson today, and make notes of things that would help you in each area of responsibility. School nutrition program directors must be competent and knowledgeable in many areas to succeed in the complex and ever-changing environment in which school nutrition operates.

**Objective 1: Describe how the principles of food production impact food quality.**

**SAY:**

Our first objective in this lesson is to help you understand how food production impacts food quality. The food production system is the core function of food service operations. The food production system determines largely how food is prepared. It should be designed to enhance the nutritive value, quality, and customer acceptance of food. It is through the food production system that schools meet the nutrition program's purpose of safeguarding the health of the nation's children by serving healthy, appealing, safe, and acceptable school meals to students. A well-designed food production system provides an avenue for serving healthy, appealing, and safe meals to schoolchildren. It provides the basis necessary for schools to produce the desired number of quality meals in a cost-effective manner.

***Instructor's Note:*** *Ask a participant to read the characteristics of a well-planned food production system from the list in their Participant's Workbook.*

*A food production system designed to meet the goals of the school nutrition program should:*

- *be efficiently designed and appropriately equipped;*
- *have adequate dry storage, refrigerated storage, and freezer space appropriately located;*
- *be capable of maintaining all products at the correct temperature; and*
- *be staffed by a school nutrition team that is appropriately trained and empowered to maximize the use of their skills and the resources available to provide tasty and nutritious foods.*

**SAY:**

While the quality of food is ultimately in the hands of the site manager and staff, an effective director will understand and implement the fundamental principles of food production. The director must provide the knowledge and leadership necessary to the management of an operations system that ensures high standards for quality food production.

**DO:**

**(Workbook Activity) Principles of Food Production**

**SAY:**

I want you to pause and think about some of the important fundamental principles of food production. In the ***Principles of Food Production*** activity, there are 12 questions in your Participant's Workbook related to some of the principles that help ensure the quality production of nutritious food for schoolchildren. Work as a team to answer each question. Choose correct answers from the list of key words in the box. Notice the first letter of the correct answer is provided for you. You have about 3 minutes to complete the assignment.

***Instructor's Note****: Prepare the numbers prior to this activity. Write the numbers 1 – 12 on a small piece of paper and distribute among tables until all 12 are issued.*

**Key Words**

| | |
|---|---|
| *Dietary Guidelines for Americans* | Production schedules |
| Freshness | Scratch cooking |
| Forecasting | Skills |
| Herbs | Spices |
| Just-in-time | Standard operating procedure |
| Menu | Standardized recipes |
| Procedures | Weighed |

1. What drives the food preparation process? **M**enu
2. What techniques are used to determine the number of food items and meals to prepare? **F**orecasting
3. What should be used for every menu item that identifies what and how much to order, equipment and supplies needed, and how to prepare? **S**tandardized recipes or manufacturer's **P**rocedures
4. What tells food service assistants the amount of each food item to prepare, portion sizes, time schedule, and person responsible? **P**roduction schedules
5. Ingredients must be selected at their peak of **F**reshness for quality products.
6. All ingredients are **W**eighed or measured accurately.

7. All culinary techniques selected should support preparation consistent with the ***D**ietary Guidelines for Americans.*
8. What is a term that means preparing a menu item in small enough amounts so that it will be at its peak of quality when placed on the serving line? **J**ust-in-time
9. What may be substituted for fat, sugar, and salt to develop and enhance flavors of food items? **H**erbs and **S**pices
10. What type of cooking allows the user to have control of ingredients contained in the food item? **S**cratch cooking
11. What should be used to ensure that food preparation and service areas are safe and free of any contaminants? **S**tandard operating procedure
12. What is vital for school nutrition staff to prepare healthy and appealing food, maintain equipment, and work in a safe and sanitary manner? **S**kills

**SAY:**

I have placed a cup (or other container) containing numbers in the center of the table. Please take turns at your table drawing a number until they are gone. You may only have two numbers at your table so it's okay if there are not enough to go around.
I am going to read the questions. If you have the corresponding number, please give us your team's answer.

**Objective 2: List the principles of developing and using standardized recipes.**

**SAY:**

In order to produce high quality food in the school nutrition program, it is necessary for the entire school nutrition staff to know the principles of developing and using standardized recipes. Standardized recipes are the basis for preparing foods of a consistent quality and quantity in any operation. Follow along in your Participant's Workbook as we discuss the basics of standardized recipes.

**DO:**

**(Workbook Activity) Definition of a Standardized Recipe**

**SAY:**

USDA's *A Menu Planner for Healthy School Meals* defines a standardized recipe as follows: "A standardized recipe is one that has been tried, adapted, and re-tried several times for use by a given food service operation and has been found to produce the same food results and yield every time" when the:

- exact procedures are used,
- with the same type of equipment, and
- the same quantity and quality of ingredients.

**ASK:**

Will someone tell us the reasons why an operation should use standardized recipes?

***Instructor's Note:*** *After allowing several participants to respond, refer the group to the list in their Participants' Workbooks.*

**Reasons for Using a Standardized Recipe**

- Standardized recipes ensure that the product will be of the same quality each time it is prepared.
- Using standardized recipes will result in the same yield in product each time the recipe is prepared.
- Both time and money are saved because employees are familiar with recipes.
- Using standardized recipes helps employees do a better job.
- The cafeteria is less likely to run out of food or need to make last minute substitutions.
- Because a standardized recipe specifies the ingredients and quantities for the required yield, food orders can be more accurate.
- Standardized recipes ensure that the food item always tastes the same no matter which employee prepares the recipe.
- When standardized recipes are used, the manager has better control of costs.

**DO:**

**(Workbook Activity) Standardized USDA Recipes**

**SAY:**

There are 14 important parts of a standardized recipe. They are listed in your Participant's Workbook. You also have a copy of a USDA recipe for Ground Beef and Spanish Rice. Try to match each of the 14 standardized recipe parts on the USDA recipe for Ground Beef and Spanish Rice (D-23) to the components on the list. When you find a part on the recipe that matches one of the 14 parts listed, write that number on the recipe and place a checkmark beside it on your list. For example, find the recipe title or name of the menu item on the USDA recipe and write number 1 beside it. Take about 2 minutes to complete the exercise, and then we will continue discussing standardized recipes. You may work together to identify the parts.

***Instructor's Note:*** *The instructor should identify the parts of the standardized recipe prior to teaching the class and make notes on the recipe provided in the Instructor's Manual.*

## Parts of a Standardized Recipe

___1. Recipe Title or the Name of the Menu Item being prepared
___2. Recipe Category–there are several categories, each corresponding to a menu component
___3. Ingredients
___4. Alternate Ingredients/Variations
___5. Weight/Volume of Each Ingredient
___6. Nutrients per Serving
___7. Critical Control Points
___8. Preparation Directions
___9. Cooking Temperatures and Time
___10. Serving/Portion Size
___11. Equipment and Suggested Tools for Serving
___12. Recipe Yield
___13. Marketing Guide
___14. USDA Reference Number

***Instructor's Note:*** *Briefly recap activity, and allow participants to provide answers.*

# Ground Beef and Spanish Rice

Meat/Meat Alternate-Vegetable-Grains/Breads — Main Dishes — D-23

| Ingredients | 50 Servings | | 100 Servings | | Directions |
|---|---|---|---|---|---|
| | Weight | Measure | Weight | Measure | |
| Raw ground beef (no more than 20% fat) | 8 lb 8 oz | | 17 lb | | 1. Brown ground beef. Drain. Continue immediately. |
| *Fresh onions, chopped<br>OR<br>Dehydrated onions | 15 oz<br>OR<br>2 ¾ oz | 2 ½ cups<br>OR<br>1 ¼ cups 2 Tbsp | 1 lb 14 oz<br>OR<br>5 ½ oz | 1 qt 1 cup<br>OR<br>2 ¾ cups | 2. Add onions and green peppers. Cook approximately 5 minutes on medium heat. |
| *Fresh green pepper, chopped | 12 oz | 2 ¼ cups 2 Tbsp | 1 lb 8 oz | 1 qt 3/4 cup | |
| Beef stock, non-MSG or water | | 3 qt 3 cups | | 1 gal 3 ½ qt | 3. Add beef stock or water, tomatoes, tomato paste, seasonings, salt, and pepper. Bring to boil. |
| Canned diced tomatoes, with juice | 2 lb 7 oz | 1 qt ⅝ cup (½ No. 10 can plus 1 cup) | 4 lb 13 oz | 2 qt 1 ½ cups (¾ No. 10 can) | |
| Canned tomato paste | 14 oz | 1 ½ cups 1 Tbsp (¼ No. 10 can) | 1 lb 12 oz | 3 cups 2 Tbsp (¼ No. 10 can) | |
| †Seasonings<br>Chili powder<br>Ground cumin<br>Paprika<br>Onion powder | | <br>2 Tbsp<br>1 Tbsp 1 ½ tsp<br>1 ½ tsp<br>1 ½ tsp | | <br>¼ cup<br>3 Tbsp<br>1 Tbsp<br>1 Tbsp | |
| Salt | | 2 tsp | | 1 Tbsp 1 tsp | |
| Ground black or white pepper | | 1 tsp | | 2 tsp | |
| Enriched white rice, long grain, regular<br>OR<br>Enriched white rice, long grain, parboiled | 3 lb 6 oz<br><br>OR<br>3 lb 10 oz | 2 qt<br><br>OR<br>2 qt 1 cup | 6 lb 12 oz<br><br>OR<br>7 lb 4 oz | 1 gal<br><br>OR<br>1 gal 2 cups | 4. Stir in rice. Return to boil. Reduce heat and cover tightly. Cook over low heat for 20-30 minutes or until rice is tender.<br><br>CCP: Heat to 155° F or higher for at least 15 seconds. |
| | | | | | 5. Pour 10 lb 9 oz (1 gallon ½ cup) into each steamtable pan (12" x 20" x 2 ½"). For 50 servings, use 2 pans. For 100 servings, use 4 pans. |
| | | | | | 6. CCP: Hold for hot service at 135° F or higher.<br><br>Portion with No. 6 scoop (⅝ cup). |

# Ground Beef and Spanish Rice

Meat/Meat Alternate-Vegetable-Grains/Breads | Main Dishes | D-23

Comments:
*See Marketing Guide.

†Mexican Seasoning Mix (see G-01A, Sauces, Gravies, and Seasoning Mixes) may be used to replace these ingredients. For 50 servings, use ¼ cup 1 ½ tsp Mexican Seasoning Mix. For 100 servings, use ½ cup 1 Tbsp Mexican Seasoning Mix.

**Marketing Guide for Selected Items**

| Food as Purchased for | 50 Servings | 100 Servings |
|---|---|---|
| Mature onions | 1 lb 2 oz | 2 lb 4 oz |
| Green peppers | 15 oz | 1 lb 14 oz |

| SERVING: | YIELD: | VOLUME: |
|---|---|---|
| ⅜ cup (No. 6 scoop) provides 2 oz equivalent meat/meat alternate, ¼ cup of vegetable, and 1 serving of grains/breads. | **50 Servings:** about 21 lb 2 oz | **50 Servings:** about 2 gallons 1 cup |
| | **100 Servings:** about 42 lb 4 oz | **100 Servings:** about 4 gallons 2 cups |
| | Tested 2004 | |

**Nutrients Per Serving**

| | | | | | |
|---|---|---|---|---|---|
| **Calories** | 282 | **Saturated Fat** | 4.44 g | **Iron** | 3.10 mg |
| **Protein** | 18.57 g | **Cholesterol** | 51 mg | **Calcium** | 41 mg |
| **Carbohydrate** | 27.05 g | **Vitamin A** | 519 IU | **Sodium** | 288 mg |
| **Total Fat** | 10.54 g | **Vitamin C** | 11.8 mg | **Dietary Fiber** | 1.2 g |

## Standardized Recipes

**ASK:**

Why is it possible for a recipe to be standardized in one school and not another? *(Allow for responses)*

**SAY:**

Many times we think a recipe has been standardized and is ready for use in our programs, but that is not necessarily so. Conditions and equipment differ from one school nutrition program to another.

It is important to remember that while recipes are standardized at the district level, it is the responsibility of the school nutrition director to oversee the standardization of the recipes for the individual schools. The quality of the product is always checked by tasting it during the standardization process. Before finally accepting the recipe, you should also conduct a taste test with your customers. Remember: adding a little more or a little less of any ingredient could make the difference between the success and failure of a recipe and impact the nutrient content of the product.

## Procedure Instead of a Recipe

**SAY:**

Sometimes we use what is referred to as a *procedure* instead of a *recipe* when preparing food to serve students who are our school nutrition customers.

**ASK:**

What is the difference between a *procedure* and a *recipe*? Write these in your Participant's Workbook. *(Ask for someone to volunteer an answer.)*

**SAY:**

A procedure identifies the steps and techniques needed for combining and preparing or finishing a product. You find procedures on packages of commercially prepared mixes,

entrees, and other products. Just as it is essential to follow a standardized recipe to get a consistent quality product, it is equally essential to follow procedures. It is also important to test the procedure in your school district kitchens using the equipment available.

## Recipe Adjustment

**SAY:**

Each USDA standardized recipe lists the quantities needed to produce 50 or 100 servings. However, to meet the school's specific needs, it will be necessary to adjust recipes to serve the projected number of customers that are forecast on any given day. While many school managers have software in their schools that will adjust recipes for them, it is important to understand the process. In addition, directors should provide training on quantity adjustment for all staff members. To help you do this, formulated steps and a worksheet are provided in your workbook.

The following steps can be used to increase or decrease the ingredients in a standardized recipe.

**Step 1: Determine the increase or decrease in the number of servings or yield needed.**

**A.** *Increase:* Recipe Yield: 100
Servings Needed: 225

**B.** *Decrease:* Recipe Yield: 100
Servings Needed: 80

**Step 2: Determine the multiplying *factor* for each ingredient.**

**A.** *Increase:* $\frac{\text{number of servings needed}}{\text{number of servings listed}} = \frac{225}{100} = 2.25$

**B.** *Decrease:* $\frac{\text{number of servings needed}}{\text{number of servings listed}} = \frac{80}{100} = 0.80$

**Step 3: Determine the total new quantity needed by multiplying the original weight/measure by the multiplying factor.**

Recipe Weight or Measure (converted) x Factor = Quantity Needed

Example: A recipe that serves 100 calls for 15 lb and 12 oz of ground beef.

**A.** *Increase:* Ground Beef: 15 lb 12 oz (252 oz) x 2.25 = 567 oz (35 lbs 7 oz)

**B.** *Decrease:* Ground Beef: 15 lb 12 oz (252 oz) x .80 = 202 oz (12 lbs 10 oz)

**Step 4: Repeat Step 3 for each ingredient in the standardized recipe.**

Multiply each and every ingredient in the standardized recipe by the multiplying factor.

**SAY:**

Increasing or decreasing spices or other seasonings during recipe adjustment may require a different proportion from other ingredients. The school nutrition director and school site manager should train food preparation employees to be careful when adjusting seasonings. *Culinary Techniques for Healthy School Meals* published by ICN offers this recommendation: in general, double the spices and herbs in a recipe when increasing from 50–100 servings. Increase the spice or herb by 25% for each additional 100 servings. Another ingredient that can be difficult to increase or decrease using the factor method is eggs. For example, if the recipe adjustment results in 1 2/3 eggs, rounding up to 2 eggs is usually fine.

**DO:**

**(Workbook Activity) Factor Method for Recipe Adjustment**

**SAY:**

Let's work through the Recipe Adjustment worksheet in your Participant's Workbook. Take a few minutes to make the conversions and then we will discuss your answers.

***Instructor's Note:*** *Participants will work with their table team to find the factor and complete the worksheet. Allow about 5 minutes to complete the exercise. Hint: In some instances, you may need to convert quantities to a smaller common measure to*

*simplify the conversion process.* ***Instructor's Note:*** *Ask for volunteers to give correct answers as you go over the worksheet. You may want to show a slide with correct answers.*

**Recipe Adjustment Worksheet Broccoli Salad 250 Servings**

| Ingredient | 100 Servings | Quantities Converted | Multiplying Factor | Calculated Amount | New Quantity (on recipe) |
|---|---|---|---|---|---|
| Fresh Broccoli, Florets | 7 lb | | | | |
| Low-Fat Mayonnaise | 2 qt | | | | |
| Sugar | 2 lb | | | | |
| White Vinegar | ½ cup | | | | |
| Low-Fat 1% Milk | ½ cup | | | | |
| Walnuts, Chopped | 1 qt + 3 ½ cups | | | | |

***Answers*** **Broccoli Salad 250 Servings**

| Ingredient | 100 Servings | Converted Quantities | Multiplying Factor | Calculated Amount | New Quantity (on recipe) |
|---|---|---|---|---|---|
| Fresh Broccoli Florets | 7 lb | 7 lb | 2.50 | 17.5 lb | 17 lb 8 oz |
| Low-Fat Mayonnaise | 2 qt | 2 qt | 2.50 | 5 qt | 5 qt |
| Sugar | 2 lb | 2 lb | 2.50 | 5 lb | 5 lb |
| White Vinegar | ½ cup | .5 | 2.50 | 1.25 cups | 1 cup + 4 T |
| Low-Fat 1% Milk | ½ cup | .5 | 2.50 | 1.25 cups | 1 cup + 4 T |
| Walnuts, Chopped | 1 qt + 3 ½ cups | 7.5 cups | 2.50 | 18.75 cups | 4 qt + 2 ¾ cups |

**Objective 3: Describe the importance of accurate measurement in food production.**

## Weights and Measures

**SAY:**

The weight/volume of each ingredient is an important part of a standardized recipe, and accuracy is essential to preparing quality products. The *USDA Recipes for Schools* uses the term measure to indicate volume or the amount of space an ingredient occupies in a measuring container. Both weights and volumes for each ingredient are listed on most USDA recipes.

Training staff to accurately weigh and measure ingredients is essential to producing a quality product. ICN's 2007 BLT Training *On the Road to Professional Food Preparation* is a great training tool for employees. Another tool is ICN's *Basics at a Glance* poster.

**DO:**

Display the poster for all to see and briefly summarize information.

**SAY:**

These materials should be available in every kitchen to help put your team on the road to quality food production. There is space provided in your Participant's Workbook to take notes if you wish.

***Instructor's Note:*** *As you present the following information about dry and liquid measures,* show *appropriate measuring utensils. Demonstrate techniques of measuring, if possible.*

**SAY:**

We will briefly introduce some of the standard measuring equipment used in school nutrition kitchens:

- Measuring spoons are used to measure small amounts of ingredients such as seasonings, spices, herbs, and flavorings. Volume measurements are used mainly for liquid ingredients and ingredients in small amounts (less than 2 ounces).
- Liquid measures are used to measure large amounts of liquids. They have a lip for pouring to prevent spills and are usually made of aluminum, glass, or plastic. Liquid measures are available in 4 sizes: 1 pint, 1 quart, ½ gallon, and 1 gallon.
- Dry measuring containers are used to measure dry ingredients. These measures do not have a lip above the rim line so the ingredients can be leveled. Dry measures are usually not purchased in sizes larger than 1 quart because it is more accurate to weigh large quantities of dry ingredients.

Weighing is faster, easier, and more accurate than measuring ingredients by volume. There is less chance for error if ingredients are weighed. *Ounce* and *pound* are the only two measures of weight that are used in cooking. Scales are used to measure ingredients by weight. The three types of scales are:

- balance scales,
- spring scales, and
- electronic scales.

Most districts use portion cups, and there is sometimes concern that ingredients portioned in a 2-ounce or 4-ounce portion cup do not equal 2 ounces or 4 ounces by weight.

**SAY:**

It is important that scales are standardized and handled with care. Scales should not be moved frequently or handled roughly. Such treatment can damage the scales, causing inaccurate readings. As a school nutrition director, it is your responsibility to see that employees, especially new hires, are trained in the proper techniques for weighing and measuring ingredients.

**Objective 4: Identify the procedures for documenting and evaluating amounts of food planned, prepared, and served.**

## Food Production Record Requirements

**SAY:**

Good record keeping is part of successful food production procedures. It provides a place for the manager to record information that communicates to the staff the food items and amounts to prepare and serve. When the food production staff needs to know how much food should be prepared for a given day and which recipe should be used, the food production record provides this information.

Since school nutrition programs receive reimbursement for all lunches, breakfasts, and snacks that conform to the meal patterns, the school food authority must provide documentation to the state and federal government about the food and the amounts served. Food production records provide evidence that quantities of foods prepared and served support the meal pattern requirements. Additionally, these records are a major management tool that can be used to control costs, plan amounts of food to purchase, and forecast trends.

Because food production records provide documentation for school nutrition programs, it is important that the school site staff understand the guidelines for completing food production records on a daily basis. Although the manager is ultimately responsible for the completion of the food production records, other members of the school nutrition staff can be assigned the job of helping complete the records. It may be a good idea to cross-train several employees to complete food production records.

**SAY:**

Production records must provide certain information as required by USDA. Look in your Participant's Workbook for a list of required information along with descriptions of each requirement.

***Instructor's Note:*** *Ask participants to take turns reading each item of required information and the matching description.*

| Food Production Records: Required Information | |
|---|---|
| Menu items | • All planned items including all choices<br>• Types of milk, dessert, and substitutions<br>• All condiments served as part of the reimbursable meal including gravy, butter, margarine, mayonnaise, relish, ketchup, mustard, and salad dressing |
| Recipes and/or products | • Specific recipes and food products<br>• Name of the food and form<br>• Recipe number if USDA<br>• If processed, brand name and code number |
| Age group or grade of students served | • Identify the age group or grade being served.<br>• Adjusted portion sizes for age group or grade specified must be shown for menu item, recipes, and products. |
| Portions or serving sizes | • Portion size served must be the same as planned. If portion size is adjusted for age, a separate line should be used. |
| Total projected servings | • Forecasted or predicted approximate number of servings needed for each menu item |
| Amount of food used | • A record verifying that the planned menu was actually prepared and served |
| Actual servings | • A record of the number of servings of each item served to students, adults, and as à la carte sales |
| Leftovers | • A record of leftovers and how the leftovers will be used |

**ASK:**

Since maintaining food production records is the responsibility of the school site staff, how many of you have actually completed food production records in your school district? (*Pause and allow participants to raise their hands.)*

**SAY:**

Even though school nutrition directors do not complete the records as a rule, it is important for them to understand the process. In your Participant's Workbook there is

an example of a food-based production record from the USDA Food and Nutrition Service. In this example, all of the requirements for completing the record are listed, and the name of the person responsible for preparing the food items is written in the third column.

Each person who has been assigned a task on the food production record should complete the part of the record that refers to the work he or she has completed. Asking for the name of the person responsible for each food item allows the manager to determine who has or has not filled in the production record for the day.

**DO:**

**(Workbook Activity) Food Production Record**

**SAY:**

Let's practice! Follow the directions in your Participant's Workbook for completing a portion of the food production schedule/record for Summitville Elementary School.

***Instructor's Note:*** *Explain to participants that due to time constraints, they are only completing records for Meat/Meat Alternates. Remind them that it is necessary to complete production records for all items served each day.*

1. Read the scenario in your Participant's Workbook for Summitville Elementary School. The information is provided for you to complete a food-based production record.
2. Fill in the required information for the Meat/Meat Alternate using the completed production record provided in your Participant's Workbook as a guide.

## Scenario

- Production Record: Food-Based
- School:  Summitville Elementary
- Serves: Lunch only (There is no breakfast or afterschool snack program.)
- Grades: K-5
- Enrollment: 350 students
- Participation: Average of 290 children and 15 adults eat lunch daily
- Entrée choice:
    - Meat Loaf *(Recipe attached)*
    - Pizza Slices [*Product Description:* Whole Grain Real Slice Pizza Sausage #12443–CN approved: 2 Bread servings (one WHOLE GRAIN serving), 2 Meat/Meat Alternates–each serving is 4.74 ounces per serving–96 count to case]
- Forecast based on past production records:
    - Meat Loaf: 30 children and 5 adults take meat loaf each time it is served
    - All others take pizza
- Actual count:
    - 27 children and 4 adults selected meat loaf
    - 258 students and 8 adults selected pizza
- Employee responsible for preparing Meat/Meat Alternates using USDA Recipe: Sue
- Employee responsible for assisting Sue and preparing pre-prepared products: Donna

# Meat Loaf

Meat/Meat Alternate-Grains/Breads — Main Dishes — D-27

| Ingredients | 50 Servings | | 100 Servings | | Directions |
|---|---|---|---|---|---|
| | Weight | Measure | Weight | Measure | |
| Canned tomato paste | 6 oz | ¾ cup | 12 oz | 1 ½ cups | 1. In mixer with the paddle attachment, combine tomato paste, water, stock, eggs, oats, and dry milk for 2 minutes on medium speed. |
| Water | | 1 cup | | 2 cups | |
| Beef stock, non-MSG | | 2 cups | | 1 qt | |
| Frozen whole eggs, thawed<br>OR<br>Fresh large eggs<br>(see Special Tip) | 8 oz | ¾ cup 3 Tbsp<br>OR<br>5 each | 1 lb | 1 ¾ cups 2 Tbsp<br>OR<br>9 each | |
| Rolled oats | 14 ½ oz | 1 qt 1 cup | 1 lb 13 oz | 2 qt 2 cups | |
| Instant nonfat dry milk | 2 ¼ oz | ¾ cup 2 Tbsp | 4 ½ oz | 1 ¾ cups | |
| Raw ground beef<br>(no more than 20% fat) | 7 lb 14 oz | | 15 lb 12 oz | | 2. Add ground beef, onions, celery, parsley, pepper, granulated garlic, basil, oregano, marjoram, thyme, and salt. Mix on low speed for 2-3 minutes or until blended. DO NOT OVERMIX. |
| *Fresh onions, finely chopped<br>OR<br>Dehydrated onions | 9 oz<br>OR<br>¾ oz | 1 ½ cups<br>OR<br>¼ cup 2 Tbsp | 1 lb 2 oz<br>OR<br>1 ½ oz | 3 cups<br>OR<br>¾ cup | |
| *Fresh celery, finely chopped | 1 lb | 3 ¾ cups | 2 lb | 1 qt 3 ½ cups | |
| Dried parsley | | ¼ cup | | ½ cup | |
| Ground black or white pepper | | 1 Tbsp | | 2 Tbsp | |
| Granulated garlic | | 1 Tbsp | | 2 Tbsp | |
| Dried basil | | ¾ tsp | | 1 ½ tsp | |
| Dried oregano | | ¾ tsp | | 1 ½ tsp | |
| Dried marjoram | | ½ tsp | | 1 tsp | |
| Dried thyme | | ½ tsp | | 1 tsp | |
| Salt | | 1 tsp | | 2 tsp | |
| | | | | | 3. Place 12 lb 14 oz (1 gal 2 ¾ qt) mixture into each steamtable pan (12" x 20" x 2 ½"). For 50 servings, use 1 pan. For 100 servings, use 2 pans. |
| | | | | | 4. Press mixture into steamtable pans. Smooth top. Separate mixture down the middle lengthwise into 2 equal loaves. |

# Meat Loaf

Meat/Meat Alternate-Grains/Breads | Main Dishes | D-27

| | |
|---|---|
| | 5. Bake:<br>Conventional oven: 350° F for 1 ½ hours<br>Convection oven: 275° F for 1 ¼ hours<br>CCP: Heat to 155° F or higher for at least 15 seconds.<br>OR<br>If using homemade stock, CCP: Heat to 165° F or higher for at least 15 seconds. |
| | 6. Drain fat from pans. Let meat loaf stand 20 minutes. Slice each loaf into 25 slices, approximately ¾" thick.<br><br>CCP: Hold for hot service at 135° F or higher. |
| | 7. Serve with Brown Gravy (see G-03) or Meatless Tomato Sauce (see G-07). |

Comments:
*See Marketing Guide.

**Marketing Guide for Selected Items**

| Food as Purchased for | 50 Servings | 100 Servings |
|---|---|---|
| Mature onions | 11 oz | 1 lb 6 oz |
| Celery | 1 lb 4 oz | 2 lb 8 oz |

| SERVING: | YIELD: | VOLUME: |
|---|---|---|
| 1 slice (¾" thick) provides 2 oz equivalent meat/meat alternate and ½ serving grains/breads. | **50 Servings:** about 11 lb 4 oz | **50 Servings:** 1 gallon 2 ¾ quarts (raw)<br>2 loaves, 25 slices each |
| | **100 Servings:** about 22 lb 8 oz | **100 Servings:** 3 gallons 1 ½ quarts (raw)<br>4 loaves, 25 slices each |
| | Tested 2004 | |

Special Tips:

1) Before baking, spread one cup of tomato sauce over the top of each loaf to retain moisture.

2) For 50 servings, use 2 ½ oz (¾ cup 2 Tbsp) dried whole eggs and ¾ cup 2 Tbsp water in place of eggs.

For 100 servings, use 4 ½ oz (1 ½ cups) dried whole eggs and 1 ½ cups

# Meat Loaf

Meat/Meat Alternate-Grains/Breads | Main Dishes | D-27

water in place of eggs.

| Nutrients Per Serving | | | | | |
|---|---|---|---|---|---|
| **Calories** | 195 | **Saturated Fat** | 4.22 g | **Iron** | 2.23 mg |
| **Protein** | 17.05 g | **Cholesterol** | 67 mg | **Calcium** | 47 mg |
| **Carbohydrate** | 8.00 g | **Vitamin A** | 154 IU | **Sodium** | 122 mg |
| **Total Fat** | 10.29 g | **Vitamin C** | 2.9 mg | **Dietary Fiber** | 1.3 g |

# Food Production Record (Summitville Elementary) K-5 Grades Offer Verses Serve Lunch Template

| Menu<br>Date<br>_____ | Meat<br>Meat Alternate | Fruit | Vegetables | Breads and Grains | Milk | Other |
|---|---|---|---|---|---|---|
| | | | | | | |

| Menu Item | | | Meal Component | | | | | Projection | | Prepared | Served | | Code | Temperature $^0$F/HACCP | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Item | Recipe # | Portion Size | M/MA oz | F cups | V cups | G/B servings | Milk cups | Student Meals | A la Carte and Adult | Actual Quantity | Student Served | A la Carte and Adult | Leftover Shortage | Start | Serve | Serve | End | Process |
| | | | | | | | | | | | | | | | | | | |
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Leftover Code: R=Refrigerate SND=Serve Next Day RTS=Returned to Stock SF=Served Free to Student S=Shortage D=Discard

**Date**_____ **Comments** _____ **Substitutions** _____

Source: Institute of Child Nutrition. (April 2012, Under Review). *Recognizing a Reimbursable Meal*.

**FEEDBACK:** *Have participants share answers. Allow time for changes if participants have written in incorrect information.*

**SAY:**

Ultimately, our goal is to ensure that the entire food production record is complete at the end of the day the meal is served. Our ability to be accurate when completing food production records is less after several hours or the next day. It is easiest to remember what was done on the day the meal is served.

## Objective 5: State the importance of production scheduling to achieve operational goals.

### Work Production Schedule

**SAY:**

The daily production of school nutrition meals must be an organized event. It is important for the school nutrition director to work with school sites to develop detailed plans for the production and service of quality meals for children. A work schedule, sometimes called a production schedule, is an excellent tool to help employees stay on task. This is different from the production record that captures the amount of food prepared.

**ASK:**

Will someone tell the class what you think should be included on a work schedule? *(Allow feedback.)*

**SAY:**

A work schedule tells each school nutrition employee everything to prepare for meal service, including any pre-preparation for the following day and a time standard for each task. It is the responsibility of the school nutrition director to work with school site

managers to determine the approximate time needed to complete a task in order to schedule time appropriately.

**DO:**

**(Workbook Activity) Daily Work Schedule for Food Production and Service**

**SAY:**

Take a minute to look over the ***Daily Work Schedule for Food Production and Service*** in your Participant's Workbook and then discuss with your table group any modifications, additions, or deletions to the schedule you would recommend. *(Allow each group about 5 minutes for the activity. Call on one person from each table to share suggestions.)*

**Daily Work Schedule for Food Production and Service**

| Time | Janie (Manager) | May | Bob | Anna |
|---|---|---|---|---|
| **7:00 AM** | Breakfast | Breakfast | Make Cookies | Breakfast Cashier |
| **7:30 AM** | | | Dish Room | |
| **8:00 AM** | Paper Work | Prepare BBQ | Make Rolls<br>Bake Cookies | Salad Preparation |
| **8:30 AM** | Supervision | | | |
| **9:00 AM** | | Wash Apples | | Prep Corn |
| **9:30 AM** | | Dish Peaches | Make BBQ/Buns | Pan Pizza |
| **10:00 AM** | Supervision/Line Set-Up | Set Up Line | Set Up Line | |
| **10:30 AM - 12:30 PM** | Lunch | Lunch | Lunch | Lunch |
| **1:00 PM** | Paper Work | Clear/Clean Line | Clean Kitchen | Dish Room |
| **1:30 PM** | Count Money | | | |
| **1:45 PM** | Place Orders | Check In Milk Delivery | | |
| **2:00 PM** | Supervise | Breakfast Prep | Next Day Prep | Dining Area Check |
| **2:30 PM** | Close-Up | | | |

## Cleaning Schedules

**SAY:**

Cleaning schedules are a way of organizing daily, weekly, and special cleaning tasks. School nutrition directors should develop uniform blank schedules for each category and provide them to school sites for completion. Look in your Participant's Workbook for an example of a weekly cleaning schedule. This format can be adapted for daily or seasonal schedules.

***Instructor's Note:*** *Briefly go over the schedule with participants.*

**ASK:**

What other cleaning tasks can be added to the list for weekly cleaning? What about daily cleaning? *(Allow participants to volunteer answers and encourage participants to make notes or add other tasks in their Participant's Workbook.)*

## Weekly/Daily Cleaning Schedule for Week of

_____

| **Employee:** | | |
|---|---|---|
| **Day to Clean** | **Cleaning Task** | **Initials - Complete** |
| Monday | Pantry | |
| Tuesday | Service Line 1<br>Milk Bin and Ice Cream Freezer | |
| Wednesday | Bathroom | |
| Thursday | Refrigerator – Service Line 1 | |
| Friday | Back Porch, Dock, and Garbage Cans | |
| **Employee:** | | |
| **Day to Clean** | **Cleaning Task** | **Initials – Complete** |
| Monday | Bathroom | |
| Tuesday | Service Line 2<br>Milk Bin and Ice Cream Freezer | |
| Wednesday | Dishroom | |
| Thursday | Refrigerator – Service Line 2 | |
| Friday | Windows on Service Line | |
| **Employee:** | | |
| **Day to Clean** | **Cleaning Task** | **Initials – Complete** |
| Monday | Bread Rack/Storage Bin | |
| Tuesday | Mixers and Area | |
| Wednesday | Convection Ovens | |
| Thursday | Bathroom | |
| Friday | Refrigerator – Kitchen | |
| **Employee:** | | |
| **Day to Clean** | **Cleaning Task** | **Initials – Complete** |
| Monday | Sinks and Lavatory | |
| Tuesday | Deep Fryers<br>Clean/Rotate Stove Top | |
| Wednesday | Tables and Stools | |
| Thursday | Freezer – Walk-In | |
| Friday | Bathroom | |
| **Employee:** | | |
| **Day to Clean** | **Cleaning Task** | **Initials – Complete** |
| Monday | Venthood | |
| Tuesday | Bathroom | |
| Wednesday | Convection Ovens and Food Carts | |
| Thursday | Freezer – Walk-In | |
| Friday | Stainless Steel Tables | |
| School Nutrition Program Assistants will be responsible for surfaces of equipment and mopping and sweeping floors in their assigned areas. The manager will inspect all areas of the kitchen at least once a week.<br><br>Date of kitchen inspection:<br>_____ | | |

Source: Institute of Child Nutrition. (2002). *Using equipment safely and efficiently.* (p. 112).

**SAY:**

Most school sites have some cleaning tasks related to food production that are designated seasonal. For example, food items may be removed from pantry areas that are difficult to gain access to in order to thoroughly clean and reorganize prior to each school year. These schedules are best posted at the time the task is to take place.

***Instructor's Note:*** *This schedule is provided as an example for discussion. Allow time and encourage participants to make modifications, additions, and/or deletions they would recommend to the schedule in their Participant's Workbook*

**Service Line Schedule**

**SAY:**

A third scheduling tool that is often used to keep meal service organized and efficient is a service line schedule. It is recommended that the school nutrition director work with managers to design a service line schedule that can be standardized for a set period of time or individualized according to the menu. An example of a service line schedule is in your Participant's Workbook. This is only one example. Work with the managers in your district to customize or design a schedule that communicates to all employees how the line should be set up.

**DO:**

**(Workbook Activity) Service Line Schedule**

***Instructor's Note:*** *Allow time for drawing and discussion of potential areas of improvement.*

**Service Line Schedule**

Date: _____ Service Line Opens/Closes: _____

Meal: (Breakfast, Lunch, Other) _____

Menu Cycle: (If Appropriate) _____

Draw service line with food placement. Design with the pan openings and other serving counter space so the diagram corresponds to your service line.

Pan Sizes:_____

Portion

Tools:_____

Server:_____

**Objective 6: List food quality standards that ensure quality food production.**

**Culinary Techniques and Food Production**

**SAY:** Foods that look good make students want to eat. School nutrition personnel must be trained in food preparation techniques that preserve food quality and are appealing to school nutrition customers. A professional uses the right culinary techniques for the food that is to be prepared. Culinary techniques are step-by-step food preparation methods. Training in proper food preparation techniques and knowing the relationship of time and temperature when holding foods is essential to the success of any quality assurance program. A well-trained food production staff should be able to do the following:

- Prepare foods of high quality to meet the established standards.
- Understand the relationship of time and temperature to the maintenance of the quality of foods held for service on the line.
- Take appropriate measures to ensure that the quality meets the expectations of the customer and the program. For example, cold foods should be prepared first, and hot foods should be prepared last. By utilizing this technique, hot foods will not be in the warmer for an extended period of time. This will also help minimize the possibility of a substandard product.

**DO:**

**(Workbook Activity-Group Report) Tips for Quality Food Preparation**

Turn in your Participant's Workbook to ***Tips for Quality Food Preparation***. We are going to use these for a short activity. The purpose of this activity is to think about culinary tips for preparation of quality food. Think about the tips that need the most emphasis in your system. As you look at your list, each group should answer this question: *What is your best idea for training staff on these tips?* Include that idea with the other information when you report back to the group.

***Instructor's Note:*** *Divide participants into six teams. Assign each group to read one section of the Tips for Quality Food Preparation provided in the workbook (Vegetables and Fruits, Grains and Breads, Lower Sodium, Cut Back on Fat, Baking, and Sautéing or Stir Frying) and report main ideas to the group. Then, each group will give an example of how they would prepare cold items first and hot items last to ensure quality products are being served to their customers. For example, school nutrition employees would prepare cold salads, fruits, and fill milk coolers, and then prepare hot items like cooking hamburger patties, roasted chicken, etc. Allow 3 minutes for groups and 5 minutes for reporting back.*

## TIPS FOR QUALITY FOOD PREPARATION

Adapted from: *Food Quality: Making the Grade in Child Nutrition, Part I,* April 21, 1999, A National Satellite Seminar.

*Preparation procedures that minimize the addition of fat and sodium, conserve nutrients, and limit holding time between preparation and service contribute to nutritious, high quality food products.*

### (Group 1) Vegetables and Fruits

- ✓ Prepare small amounts rather than large single batches. Avoid overcooking: nutritive value is lost and quality is lowered through long exposure to heat. Fresh or frozen vegetables can be steamed, baked, or sautéed.
- ✓ To retain nutrients and bright color, cook "just until tender". A good way to cook vegetables is using a convection steamer.
- ✓ Baking soda should not be added to green vegetables to retain color during cooking. It makes the cooking water alkaline, destroying thiamin and vitamin C.

### (Group 2) Grains and Breads

- ✓ Read package directions regarding washing rice. Rice is enriched by spraying with vitamins and minerals. When rice is washed, the enrichment goes down the drain. Rinsing cooked grains and pastas also causes considerable loss of nutrients and is not recommended.
- ✓ Browning or toasting uncooked rice before adding water can destroy thiamin.
- ✓ To make breads more nutritious, consider substituting whole wheat flour for part of the white flour in recipes. When introducing whole grains, try starting with 10% whole wheat flour or grains and gradually increase the amount over time. While students might not like a 100% whole-wheat crust, some food service operations have found that children like a pizza crust made with 50% whole wheat flour.

### (Group 3) Lower Sodium (while maintaining flavor)

- ✓ Select foods and recipes carefully. Read the labels! Processed products are often loaded with sodium or salt. Salt is sodium chloride. Food labels list sodium rather than salt content. When reading a Nutrition Facts Panel on a food product, look for the sodium content. Foods that are low in sodium (less than 140 mg or 5 percent of the Daily Value [DV]) are low in salt.
- ✓ Add salt only if absolutely necessary. If some of the ingredients in a recipe already contain salt (e.g., canned soup, canned vegetables, or cheese), you may not need to add salt at all.

- ✓ Gradually reduce the amount of salt in recipes. Try decreasing it by a ¼, then gradually by ½ .
- ✓ Add less salt to the water when cooking pasta, rice, or hot cereal. Use one tablespoon of salt per gallon of water. This provides flavor but is still low in sodium.
- ✓ Use fresh or fresh-frozen meats in recipes instead of canned meats whenever possible.
- ✓ Enhance flavor with spices and herbs. Keep in mind that when you reduce salt, you may need to adjust other seasonings.

**(Group 4) Cut Back on Fat (without sacrificing quality)**

- ✓ When adding fats to recipes, select unsaturated fats such as liquid, oils, or soft margarine.
- ✓ Make marinades without oil.
- ✓ Cook rice and other grains and beans in de-fatted broth and add herbs, garlic, or onions for more taste.
- ✓ When possible, skin chicken before cooking.
- ✓ Drain all meats after cooking.
- ✓ De-fat whenever possible. If your school has the ability to quickly chill and reheat foods in a safe manner, allow time to let soups, stews, and braised dishes cool so the fats will rise to the top, congeal, and easily be spooned off.

**(Group 5) Baking**

- ✓ Replace butter and other fats with fruit or vegetable puree.
- ✓ Use a non-stick cooking spray on baking pans.
- ✓ Check ingredient labels and recipes for high-fat foods. When possible, choose similar products without high-fat ingredients.
- ✓ Use fruit purees, such as prune puree or applesauce, in place of up to half the fat in some baked goods.

- ✓ Decreasing the fat too much in rolled cookies can make dough that is difficult to roll out. Soft drop cookies allow fat to be decreased with better results.

**(Group 6) Sautéing or Stir-frying**

- ✓ Brush the pan with oil just to coat it, or use a non-stick spray made from vegetable oil. (Vegetable oil spray will add less than 10 fat calories to a pan of sautéed vegetables whereas 2 tablespoons of oil adds an extra 240 fat calories.)
- ✓ Do not add butter to vegetables. Use a spice blend instead.
- ✓ Experiment with ways to add flavor and moisture without adding fat, such as using marinades, chicken or meat broth, concentrated fruit juice, fresh fruit, or apple juice.

## Food Quality and Performance Assessment

**SAY:**

We all know that directors cannot be in every school every day to supervise, but they are ultimately responsible for the integrity of the program. Reviewing completed production records and quality scorecards will ensure that:

- the menu is being followed;
- high quality meals which meet students' nutrition needs and wants are being served; and
- fiscal accountability is maintained.

The Food Quality and Performance Assessment form in your Participant's Workbook is an aid to help you monitor the school site. Directors need to know what is happening at the school site. Your visits demonstrate the value you as the director place on the program where the "rubber meets the road" and the value you place on the employees who are on the front line every day.

*Instructions: Use the Food Quality and Performance Assessment form to evaluate the food production program at schools during an unannounced visit. Mark **Yes** when the food meets the district's standards and **No** when it does not. Use the **Comments** section to explain why the standard was not met and what action is required. The evaluation should be discussed with the manager and principal.*

***Instructor's Note:*** *Go over the assessment briefly and ask if there are questions or comments. Allow limited discussion.*

**Food Quality and Performance Assessment**

School:

_____

Date:

_____

Manager:

_____

Principal:

_____

Meal Service: Breakfast:_____ Lunch:_____ Snack:_____

## I. Food Quality/Quantity

1. Is the district menu plan being followed?
   Yes_____ No_____
2. Are USDA and/or standardized recipes being followed?
   Yes_____ No_____
3. Is "Just-in-Time" (batch cooking) being done?
   Yes_____ No_____
4. Are correct portion sizes for the reimbursable meal being offered?
   Yes_____ No_____
5. Do salads and fresh fruit look freshly prepared?
   Yes_____ No_____
6. Are all food items palatable and appealing to the eye?
   Yes_____ No_____

## II. Food Temperatures/Food Safety Program

1. Is a food safety program in place to ensure correct temperatures?

   Yes _____No _____

   - Hot Food Entrée #1 _____Is the temp >135° F?

     Yes _____No _____

   - Hot Food Entrée #2_____Is the temp >135° F?

     Yes_____ No _____

   - Hot Vegetable _____Is the temp >135° F?

     Yes _____No_____

   - Cold Food Item _____Is the temp <41° F?

     Yes _____No _____

   - Cold Beverage _____Is the temp <41° F?

     Yes _____No_____

## III. Production Records

1. Are production records up to date?

   Yes _____No_____

2. Are production records accurately completed?

   Yes _____No _____

## IV. Presentation-Marketing and Merchandising

1. Is the food attractively displayed (no foil or film, correct pan size, etc.)?

   Yes _____No_____

2. Is the serving line clean during service?

   Yes _____No _____

3. Are staff neatly dressed and following the school's dress code?

   Yes _____No_____

4. Is the serving line decorated to enhance the atmosphere of the serving area?

   Yes _____No _____

**V. Comments**

_____

_____

_____

_____

**Manager:**

_____

**Principal:**

_____

**Director/Supervisor:**

_____

**SAY:**

After you complete the assessment, it is important to give feedback to the manager. Go over the form. Give suggestions for implementing improvements and praise when excellence is observed. Share the assessment with the principal to encourage administrator support of staff.

# Follow-Up Suggestions

1. Work with a team to assess where your school district is and what improvements are needed in the area of Food Production.
2. Use the Food Quality & Performance Assessment form as you visit schools.
3. Teach managers and assistants to use the Quality Scorecards from this lesson.
4. Set goals for improving in the nutritional integrity of meals in your district.
5. Test your knowledge of measurement conversions using the instrument *Do you know your Conversions*? You can find the instrument along with the answer key under "Additional Resources" in the back of your Participant's Workbook.

# Key Terms

| Term | Definition |
|---|---|
| Food production | The managerial function of converting food items purchased in various states into menu items that are served to a customer |
| Quality standards | Standards established to evaluate the appearance, flavor, texture, and service temperature of food items in order to ensure characteristics of high quality products |
| Standardized recipe | A recipe that has been tried, adapted, and retried several times for use by a given food service operation and has been found to produce the same food results and yield every time |
| Procedure | Identifies the steps and techniques needed for combining and preparing or finishing a product |
| 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 service line; other terms that mean the same thing are "batch cooking" and "cooking to the line" |
| Production schedules | Organized plans for the accomplishment of all tasks necessary to produce the menu |
| Production records | A record which contains information that communicates to the staff the food items and amounts to prepare and serve |

# Additional Resources and Food Production Tools

| Can Size | Average Net Weight or Fluid Measure per Can | | Average Volume per Can | | Cans per Case |
|---|---|---|---|---|---|
| | ***Customary*** | ***Metric*** | ***Cups*** | ***Liters*** | ***Cans*** |
| No. 10 | 6 lb (96 oz) to 7 lb 5 oz (117 oz) | 2.72 kg to 3.31 kg | 12 cups to 13-2/3 cups | 2.84 L to 3.24 L | 6 per case |
| No. 3 Cyl | 51 oz (3 lb 3 oz) or 46 fl oz (1 qt 14 fl oz) | 1.44 kg or 1.36 L | 5-3/4 cups | 1.36 L | 12 per case |
| No. 2-1/2 | 26 oz (1 lb 10 oz) to 30 oz (1 lb 14 oz) | 737 g to 850 g | 3-1/2 cups | 0.83 L | 24 per case |
| No. 2 Cyl | 24 fl oz | 709 mL | 3 cups | 0.71 L | 24 per case |
| No. 2 | 20 oz (1 lb 4 oz) or 18 fl oz (1 pt 2 fl oz) | 567 g or 532 mL | 2-1/2 cups | 0.59 L | 24 per case |
| No. 303 (old) | 16 oz (1 lb) to 17 oz (1 lb 1 oz) | 453 g to 481 g | 2 cups | 0.47 L | 24 or 36 per case |
| No. 300 (new) | 14 oz to 16 oz (1 lb) | 396 g to 453 g | 1-3/4 cups | 0.41 L | 24 per case |
| No. 2 (Vacuum) | 12 oz | 340 g | 1-1/2 cups | 0.36 L | 24 per case |
| No. 1 (Picnic) | 10-1/2 oz to 12 oz | 297 g to 340 g | 1-1/4 cups | 0.30 L | 48 per case |
| 8 oz | 8 oz | 226 g | 1 cup | 0.24 L | 48 or 72 |

Source: U. S. Department of Agriculture, FNS. (2007). *Food buying guide for children nutrition programs,* p.I-30.

**Do you know your conversions?**
Complete the following conversions by filling in the blank with the correct answer.

| | | |
|---|---|---|
| 3 teaspoons (tsp) | = | _____ T |
| 4 Tablespoons (T) | = | _____ cup |
| 5-1/3 T | = | _____ cup |
| 8 T | = | _____ cup |
| 16 T | = | _____ cup |
| 1 cup | = | _____ fl oz |
| 1 cup | = | _____ pint |
| 2 cups | = | _____ fl oz |
| 2 cups | = | _____ pint |
| 1 quart | = | _____ cups |
| 1 quart | = | _____ fl oz |
| 2 quarts | = | _____ gal |
| 2 quarts | = | _____ fl oz |
| 4 quarts | = | _____ gal |
| 4 quarts | = | _____ pints |
| 4 quarts | = | _____ fl oz |
| 4 quarts | = | _____ cups |
| 1 peck | = | _____ quarts |
| 1.75 lb | = | _____ lb ____oz |
| 1 pound | = | _____ oz |
| #10 can | = | _____ lb to ____ lb ____ oz |
| #10 can | = | _____ cups to _____ cup servings |

Ladle Equivalents

| | | |
|---|---|---|
| 8 fl oz | = | _____ cup |
| 6 fl oz | = | _____ cup |
| 4 fl oz | = | _____ cup |
| 2 fl oz | = | _____ cup |
| 1 fl oz | = | _____T |

Disher, Dipper, Scoop Equivalents

| | | |
|---|---|---|
| #8 | = | _____ cup |
| #12 | = | _____ cup |
| #16 | = | _____ cup |

# Answer Key

| | | |
|---|---|---|
| 3 teaspoons (tsp) | = | 1 T |
| 4 Tablespoons (T) | = | 1/4 cup |
| 5-1/3 T | = | 1/3 cup |
| 8 T | = | 1/2 cup |
| 16 T | = | 1 cup |
| 1 cup | = | 8 fl oz |
| 1 cup | = | 1/2 pint |
| 2 cups | = | 16 fl oz |
| 2 cups | = | 1 pint |
| 1 quart | = | 4 cups |
| 1 quart | = | 32 fl oz |
| 2 quarts | = | 1/2 gal |
| 2 quarts | = | 64 fl oz |
| 4 quarts | = | 1 gal |
| 4 quarts | = | 8 pints |
| 4 quarts | = | 128 fl oz |
| 4 quarts | = | 16 cups |
| 1 peck | = | 8 quarts |
| 1.75 lb | = | 1 lb 12 oz |
| 1 pound | = | 16 oz |
| #10 can | = | 6 lb to 7 lb 5 oz |
| #10 can | = | 12 cups to 13-2/3 cup servings |

Ladle Equivalents

| | | |
|---|---|---|
| 8 fl oz | = | 1 cup |
| 6 fl oz | = | 3/4 cup |
| 4 fl oz | = | 1/2 cup |
| 2 fl oz | = | 1/4 cup |
| 1 fl oz | = | 2 T |

Disher, Dipper, Scoop Equivalents

| | | |
|---|---|---|
| #8 | = | 1/2 cup |
| #12 | = | 1/3 cup |
| #16 | = | 1/4 cup |

# Supplemental Resources

Institute of Child Nutrition. (2009). *Competencies, knowledge, and skills for district-level school nutrition professionals in the 21st Century*. University, MS: Author.

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# Pre/Post-Assessment

## Food Production and Operation Management

Multiple Choice Questions

1. What drives the food preparation process?
    a. Menu
    b. Equipment available
    c. Skills of employees
    d. Nutrient standards

2. Which of the following is NOT required in food production records?
    a. Age group of students
    b. Raw food cost per serving
    c. Portion or serving size
    d. Amount of food used

3. The technique used to determine the number of food items to prepare is
    a. Inventory
    b. Standard stock
    c. Forecast
    d. Offer versus serve

4. Culinary techniques selected should support preparation consistent with
    a. Standardized recipes
    b. *Dietary Guidelines for Americans*
    c. Production schedules
    d. Scratch cooking

5. The recipe you want to prepare yields 100 servings. You want to serve 75 students. What factor can you multiply times the amount for each ingredient for a yield of 75?
    a. .25
    b. .50
    c. .75
    d. 75

Answers: **1(a), 2(b), 3(c), 4(b), 5(c)**


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