Orientation to School Nutrition Management

Food Production and Operation Management

Participant's Workbook

Time: 2 ¼ hours

Key Area 2: Operations
Learning Code: 2000

2017

Institute of Child Nutrition
The University of Mississippi

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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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Introduction

As the years have gone by, there have been many changes which have affected the way schools prepare and serve meals. Some of the changes were good, and some were not so good. For example:

- Society and lifestyles—including the emergence of fast food, increased multiple choices of places and food to eat, and availability of more processed foods—have had a major impact on food production in schools.
- Legislation that authorized *offer versus serve* and opened doors for more à la carte or extra food sales as well as an opportunity for children to decline milk contributed to a change in student expectations.
- Standards for school nutrition meals continue to change.
- Since 1994, schools have been required to offer meals that meet the *Dietary Guidelines for Americans* (DGAs) which has necessitated the consideration of flavor enhancers to compensate for less sugar, salt, and fat in the meals.

These changes have had a major impact on the customers' food habits as well as their health. As the food preferences of children change from eating traditional type meals to fast foods and childhood obesity increases, schools are being expected to play a role in helping to reverse the trend. Now is the time for new directors to be aware of and commit to preparing and serving healthier choices in school meals.

As new and aspiring directors, you are challenged to go back to preparing more foods onsite and to move away from only serving prepared items. As this happens, you must offer training in food preparation, provide additional cooking and holding equipment, and make other operational changes. While the quality of foodservice 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 ensure compliance with USDA regulations.

A director/supervisor must be able to do the following:

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

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: http://theicn.org/ResourceOverview.aspx?ID=284

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 Plan

Introduction

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 when the National School Lunch Act was passed in 1946. However, there have been many changes that impact the way we produce meals for school children today.

Activity: Change

Question: Can you think of specific changes over the years that affect the way school nutrition programs prepare school meals? Write at least **five** in the space provided below.

1. _____
   _____
2. _____
   _____
3. _____
   _____
4. _____
   _____
5. _____
   _____

Activity: Role of the School Nutrition Director

As a director, you will not be present every day to supervise the production of the menu, but you are the person most responsible for the integrity of the meal. There are 14 responsibilities listed in the School Nutrition Director Rating System.

Instructions:

1. Read the responsibilities; and give yourself a rating on each responsibility.
2. If you feel you know just about everything related to the responsibility or feel you can do it without effort, give yourself a 5.
3. Give yourself a 1 or 2 if you feel you are a beginner or have a lot to learn. Of course, you can rate yourself anywhere in between.

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 to meet generally accepted principles of menu planning.	
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.	

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

The food production system is the heart of the school nutrition operation. A well-designed food production system provides an avenue for serving healthy, appealing, and safe meals to school children. It provides the basis necessary for schools to produce the desired number of quality meals in a cost-effective manner.

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, nutritious foods.

Activity: Principles of Food Production

Work as a team to answer each question. Choose correct answers from the list of key words in the box. You have 3 minutes to complete the assignment. **Note:** You have a hint for the correct answer; the beginning letter of the answer is provided for you.

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**_____
2. What techniques are used to determine the number of food items and meals to prepare? **F**_____
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_____ or manufacturer's **P**_____
4. What tells food service assistants the amount of each food item to prepare, portion sizes, time schedule, and person responsible?
   P_____
5. Ingredients must be selected at their peak of **F**_____ for quality products.
6. All ingredients are **W**_____or measured accurately.
7. All culinary techniques selected should support preparation consistent with the **D**_____.
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_____
9. What may be substituted for fat, sugar, and salt to develop and enhance flavors of food items? **H**_____ and **S**_____
10. What type of cooking allows the user to have control of ingredients contained in the food item? **S**_____
11. What should be used to ensure that food preparation and service areas are safe and free of any contaminants? **S**_____
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**_____

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

Activity: Definition of a Standardized Recipe

Instructions: Complete the definition of a standardized recipe using the key terms from the box.

Key Terms				
adapted	re-tried	results	tried	yield

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

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

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 school 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.

Activity: Standardized USDA Recipes

A recipe tells how to make a certain menu item by providing all the essential information in a standard format. A Standardized Recipe contains 14 important parts.

Parts of a standardized recipe are:

___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

Instructions: Match each of the 14 standardized recipe parts on the USDA Ground Beef and Spanish Rice (D-23) recipe to the choices on the list. When you find a part on the recipe that matches one of the 14 parts listed, place a check mark on the list beside it and write that number on the recipe where it is located.

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 OR Dehydrated onions	15 oz OR 2 ¾ oz	2 ½ cups OR 1 ¼ cups 2 Tbsp	1 lb 14 oz OR 5 ½ oz	1 qt 1 cup OR 2 ¾ cups	2. Add onions and green peppers. Cook approximately 5 minutes on medium heat.
*Fresh green pepper, chopped	12 oz	2 ¾ 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 (¾ No. 10 can)	1 lb 12 oz	3 cups 2 Tbsp (¼ No. 10 can)	
†Seasonings Chili powder Ground cumin Paprika Onion powder		 2 Tbsp 1 Tbsp 1 ½ tsp 1 ½ tsp 1 ½ tsp		 ¼ cup 3 Tbsp 1 Tbsp 1 Tbsp	
Salt		2 tsp		1 Tbsp 1 tsp	
Ground black or white pepper		1 tsp		2 tsp	
Enriched white rice, long grain, regular OR Enriched white rice, long grain, parboiled	3 lb 6 oz OR 3 lb 10 oz	2 qt OR 2 qt 1 cup	6 lb 12 oz OR 7 lb 4 oz	1 gal OR 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. CCP: Heat to 155° F or higher for at least 15 seconds.
					5. Pour 10 lb 9 oz (1 gallon ⅓ 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. 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

Question: Why is it possible for a recipe to be standardized in one school and not another?

Answer: 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.

Procedure Instead of a Recipe

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.
Question: What is the difference between a *procedure* and a *recipe*?

_____

_____

_____

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

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.

Activity: Factor Method for Recipe Adjustment

Instructions: Work with your table team to find the factor and complete the worksheet.

Hint: In some instances, you may need to convert quantities to a smaller common

measure to simplify the conversion process. You have about 5 minutes to complete the exercise.

Recipe Adjustment Worksheet

Broccoli Salad 250 Servings

	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				

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

Weights and Measures

The weight/volume of each ingredient is an important part of a standardized recipe and accuracy is essential to preparing quality products. ICN's BLT training *On the Road to Professional Food Preparation* and the *Basics at a Glance* poster will be useful tools for training the nutrition staff in proper measurement techniques.

Notes: *You may want to take notes about liquid measures and scales as your instructor discusses their use.*

_____

_____

_____

_____

_____

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

Production Record Requirements

Production records must provide certain information as required by USDA.

Food Production Records: Required Information	
Menu items	• All planned items including all choices • Types of milk, dessert, and substitutions • 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 • Name of the food and form • Recipe number if USDA • If processed, brand name and code number
Age group or grade of students served	• Identify the age group or grade being served. • 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

Maintaining food production records is the responsibility of the school site staff. Even though school nutrition directors do not complete the records as a rule, it is important for them to understand the process.

Activity: Food Production Record

The following information is provided for you to complete a food-based production record. Fill in the required information for the Meat/Meat Alternate on the blank food production record provided.

Summitville Elementary School

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 #1244-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	⅝ cup	12 oz	1 ⅓ 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 OR Fresh large eggs (see Special Tip)	8 oz	¾ cup 3 Tbsp OR 5 each	1 lb	1 ¾ cups 2 Tbsp OR 9 each	
Rolled oats	14 ⅔ 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 ⅝ cups	
Raw ground beef (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 OR Dehydrated onions	9 oz OR ¾ oz	1 ⅓ cups OR ¼ cup 2 Tbsp	1 lb 2 oz OR 1 ½ oz	3 cups OR ¾ cup	
*Fresh celery, finely chopped	1 lb	3 ⅜ cups	2 lb	1 qt 3 ⅓ 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: Conventional oven: 350° F for 1 ½ hours Convection oven: 275° F for 1 ¼ hours CCP: Heat to 155° F or higher for at least 15 seconds. OR 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. 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) 2 loaves, 25 slices each
	100 Servings: about 22 lb 8 oz	**100 Servings:** 3 gallons 1 ½ quarts (raw) 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

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 (School Name) K-5 Grades Offer Verses Serve Lunch—Template

Menu Date _____	Meat 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

Leftover Codes: 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*.

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

Activity: Daily Work Schedule for Food Production and Service

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.

Instructions: Take a minute to look over the work schedule below, and then discuss with your table group any modifications, additions, or deletions you recommend to the schedule. Be prepared to share your recommendations with the class.

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 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			

Modifications, additions, or deletions you recommend to the schedule

Weekly/Daily Cleaning Schedule for Week of _____

Employee:		
Day to Clean	**Cleaning Task**	**Initials - Complete**
Monday	Pantry	
Tuesday	Service Line 1 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 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 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.

Date of kitchen inspection:_____

Source: Institute of Child Nutrition. (2002). *Using Equipment Safely and Efficiently.* (p. 112).

Cleaning Schedules

Cleaning schedules are usually organized by daily cleaning tasks, weekly cleaning tasks, and special cleaning tasks. This format can be adapted for daily or seasonal schedules.

What other cleaning tasks can be added to the list for weekly cleaning? What about daily cleaning?

_____

_____

_____

_____

_____

Service Line Schedule

Another 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.

Service Line Schedule

Date: _____

Service Line Opens/Closes: _____

Meal: (Breakfast, Lunch, Other) _____

Menu Cycle: (If Appropriate) _____

Activity: Service Line

Draw a 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

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. The cooking method has become increasingly important in meeting the nutritional standards of the *Dietary Guidelines for Americans.*

Activity (Group Report): Tips for Quality Food Preparation

Instructions: Divide into groups and discuss the main ideas as well as give an example of how you would prepare cold items first then hot items last to ensure quality products are being served to your customers for your group's topic. 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.

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 literally goes down the drain. Rinsing cooked grains and pastas also causes a considerable loss of nutrients and is not recommended.

- ✓ Browning or toasting uncooked rice before adding water can also 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% 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 be easily 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 while 2 tablespoons of oil adds an extra 240 fat calories.)
- ✓ Cut back on buttering vegetables by using one part margarine and one part lemon juice.
- ✓ 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

*Directions: 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.*

Food Quality and Performance Assessment

The Food Quality and Performance Assessment is an aid to help you monitor the school site. After you complete the assessment, it is important to give feedback to the manager.

Date: _____

School: _____

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: _____

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 the nutritional integrity of meals in your district.
5. Test your knowledge of measurement conversions using the instrument *Do you know your Conversations*? You can find the instrument along with the answer key under "Additional Resources".

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 foodservice 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

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

Conversions 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.

Institute of Child Nutrition. (2002). *Basics at a glance* poster. University, MS: Author.

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Pre/Post-Assessment

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

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