MEASURING SUCCESS WITH STANDARDIZED RECIPES

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OVERVIEW OF TRAINING MATERIALS

This set of materials, Measuring Success with Standardized Recipes, is designed as a comprehensive package and includes: a manual, a video, and an interactive CD-ROM. Its goals are to assist school foodservice managers and employees in gaining an appreciation of the importance of using standardized recipes and help managers develop and use standardized recipes in their school foodservice operations.

Manual

The manual describes recipe standardization techniques in detail and includes examples, practice exercises, and reference materials. It is a "how-to" guide on recipe standardization for managers and cook-level employees. The manual provides a description of the content of the video and CD-ROM, suggests strategies for using these materials, and includes employee training guides and evaluation tools. The manual is designed to be a complete source of information on recipe standardization. A glossary of terms related to recipe standardization is included.

Video

The video is approximately 15 minutes in length and is intended primarily for in-service training of foodservice employees. It is designed to create an awareness of the importance of standardized recipes and encourage employees to follow standardized recipes.

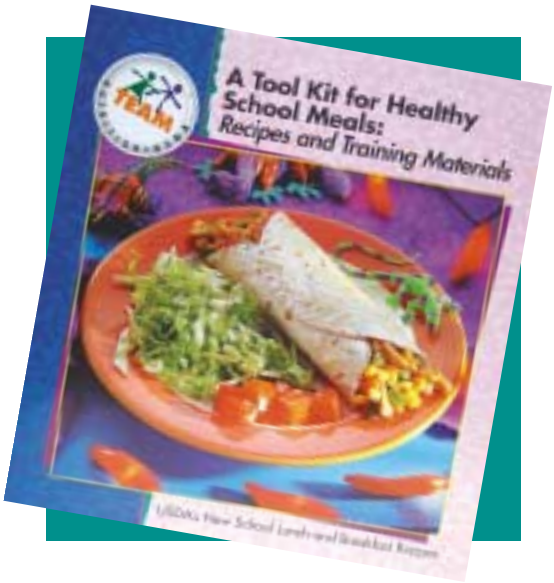
CD-ROM

The CD-ROM is a self-paced, interactive, instructional tool designed to assist managers in learning the recipe standardization process. It includes a Recipe Adjuster module in which users can enter their own recipes and have them automatically adjusted for any desired yield. Evaluation forms and resource materials also are available on the CD-ROM.

RECIPE STANDARDIZATION PROCESS

Definition

The United States Department of Agriculture (USDA) defines a standardized recipe as one that "has been tried, adapted, and retried several times for use by a given foodservice operation and has been found to produce the same good 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" in the manual, *A Tool Kit for Healthy School Meals: Recipes and Training Materials* (p. 37). The terms "quantity recipes" and "standardized recipes" often are confused with each other. Many recipes are written to produce large quantities of food. Any recipe that produces 25 servings or more is termed a quantity recipe. Quantity recipes are not standardized, however, until they have been adapted to an individual school foodservice operation.



Benefits of Standardized Recipes

Using standardized recipes provides many benefits to school foodservice operations. These benefits include:

- **Consistent food quality**—The use of standardized recipes ensures that menu items will be consistent in quality each time they are prepared and served.

- **Predictable yield**—The planned number of servings will be produced by using standardized recipes. This can help to reduce the amount of leftover food if there has been overproduction, and also will help to prevent shortages of servings on the line. A predictable yield is especially important when food is transported from a production kitchen to other serving sites.

- **Customer satisfaction**—Well-developed recipes that appeal to students are an important factor in maintaining and increasing student participation levels. Schools may take a lesson from national restaurant chains that have developed popular menu items consistent in every detail of ingredient, quantity, preparation, and presentation. Standardized recipes provide this consistency and can result in increased customer satisfaction.

- **Consistent nutrient content**—Standardized recipes will ensure that nutritional values per serving are valid and consistent.

- **Food cost control**—Standardized recipes provide consistent and accurate information for food cost control because the same ingredients and quantities of ingredients per serving are used each time the recipe is produced.

- **Efficient purchasing procedures**—Purchasing is more efficient because the quantity of food needed for production is easily calculated from the information on each standardized recipe.

- **Inventory control**—The use of standardized recipes provides predictable information on the quantity of food inventory that will be used each time the recipe is produced.

- **Labor cost control**—Written standardized procedures in the recipe make efficient use of labor time and allow for planned scheduling of foodservice personnel for the work day. Training costs are reduced because new employees are provided specific instructions for preparation in each recipe.

- **Increased employee confidence**—Employees feel more satisfied and confident in their jobs because standardized recipes eliminate guesswork, decrease the chances of producing poor food products, and prevent shortages of servings during meal service.

- **Reduced record keeping**—A collection of standardized recipes for menu items will reduce the amount of information required on a daily food production record. Standardized recipes will include the ingredients and amounts of food used for a menu item. The food production record will only need to reference the recipe, number of planned servings, and leftover amounts.

- **Successful completion of State/Federal reviews**—Standardized recipes are a source of documentation for the School Meals Initiative (SMI) reviews. SMI reviews determine how well schools are meeting the statutory nutrition standards. Schools using a Food-Based Menu Planning System provide a week of menus, recipes, and production records for nutrient analysis by the State Agency. A review cannot be completed if the recipes are missing information or provide inaccurate information on ingredients, yield, or serving size. The Nutrient Standard Menu Planning and Assisted Nutrient Standard Menu Planning Systems also require standardized recipes to ensure that the nutrient analysis is accurate. Menus, recipes, production records, and the nutrient analysis are kept on file for review.

Importance of Standardized Recipes

Three main areas of school foodservice operation are negatively impacted when standardized recipes are not used:

Cost

Nutrients per Serving

Customer Satisfaction

Cost

Recipes are developed with specific ingredient amounts. When additional amounts of ingredients are added to a recipe or recipes are portioned incorrectly, there may be a change in the cost to produce that recipe.

For example, the school foodservice has a recipe for Fiesta Beef Casserole that calls for 35 lb of ground beef to make 200 servings. The Fiesta Beef Casserole recipe is specified to serve 25 portions per pan by cutting a half steam table pan (12" x 10" x 2½") 5 x 5. If a cook uses 40 lb of ground beef (four 10-lb packages), the cost per portion increases significantly because 5 additional pounds of meat were used.

Fiesta Beef Casserole Cost per Serving with 35 lb ground beef	Fiesta Beef Casserole Cost per Serving with 40 lb ground beef	Difference in Cost per Serving of Fiesta Beef Casserole
$0.46	$0.51	+$0.05

While $0.05 per serving may not seem like much, imagine if similar changes were made to one recipe each day during the school year with the same cost impact.

$0.05 per serving x 200 servings x 160 school days = **$1,600**

Suddenly, what seemed like a small addition of a few pounds of meat can become a major cost for the program.

Costs are based on the assumption that a recipe will yield a certain number of servings. The Fiesta Beef Casserole recipe is specified to yield 25 servings per pan by cutting a half steam table pan (12" x 10" x 2½") 5 x 5. What if the pan was cut 4 x 5 and yielded 20 servings instead of 25 servings?

Servings per pan	Cost per serving
20 servings	$0.58
25 servings	$0.46
Difference	+$0.12

$0.12 per serving x 200 servings x 160 school days = **$3,840**

If similar mistakes are made multiple times a day, the costs really add up! Plate waste also may increase when servings are too large; and because a larger portion was served to each student, the likelihood of running out of food increases greatly.

Nutrients per Serving

Besides increases in cost, the nutrients per serving for a recipe can be altered significantly when a recipe is not followed. Take a look at the comparison of nutrient content of a serving of the Fiesta Beef Casserole when cut into 20 versus 25 servings.

Nutrient facts	25 servings per pan	20 servings per pan
Serving size	6.5 oz	8.1 oz
Calories	255	318
Protein	12.7 g	15.9 g
Carbohydrate	22.5 g	28.2 g
Total fat	12.5 g	15.6 g
Saturated fat	5.0 g	6.2 g
Cholesterol	44.0 mg	55.0 mg
Vitamin A	145.0 IU	181.0 IU
Vitamin C	12.2 mg	15.2 mg
Iron	2.3 mg	2.9 g
Calcium	27.3 mg	34.2 mg
Sodium	404.0 mg	506.0 mg
Dietary fiber	1.0 g	2.0 g

Customer Satisfaction

Another very important reason to use standardized recipes is keeping customers happy and satisfied. Standardized recipes provide the same recipe outcome no matter who is preparing them. Production and other staff members can become familiar with the recipes quicker because recipes have the same format. Guesswork is eliminated because staff members have confidence that the recipe will turn out how it is intended. Customers will be more satisfied and participation may increase because customers know what to expect each time a product is served.

Standardized Recipe Components

Standardized recipes for school foodservice operations should always have certain components:

1. **Recipe title**—Name that adequately describes the recipe.

2. **Recipe category**—Recipe classification based on USDA or operation-defined categories, i.e., main dishes, grains/breads.

3. **Ingredients**—Products used in a recipe.

4. **Weight/Volume of each ingredient**—The quantity of each ingredient listed in weight and/or volume.

5. **Preparation instructions (directions)**—Directions for preparing the recipe.

6. **Cooking temperature and time**—The cooking temperature and time, if appropriate.

7. **Serving size**—The amount of a single portion in volume and/or weight.

8. **Recipe yield**—The amount (weight or volume and number of servings) of product at the completion of production that is available for service.

9. **Equipment and utensils to be used**—The cooking and serving equipment to be used in preparing and serving the recipe.

Other Possible Components

10. **Contribution to the Food-Based Menu Planning System**—Identifies the component (meat/meat alternates, vegetables/fruit, and/or grains/breads) the recipe contributes to and is applicable when using Traditional and Enhanced Food-Based Menu Planning Systems.

11. **State/Federal reviews**—State and Federal guidelines may require specific information to be recorded on standardized recipes as documentation for School Meal Initiative reviews.

12. **Nutrient analysis**—Nutrients per serving.

13. **Marketing guide**—Suggested purchase quantities for ingredients that have a preparation loss or gain before they are ready to use in a recipe.

14. **Food safety guidelines**—Procedures designed to ensure the safe production and service of food. Hazard Analysis Critical Control Point (HACCP) information, if appropriate.

15. **Recipe variations**—Alternative way of preparing the recipe.

16. **Alternative ingredient**—Ingredient that could be substituted for a listed recipe ingredient.

17. **Optional ingredients**—Ingredients that could be added to a recipe to enhance the flavor or acceptability. The addition of these ingredients may affect the nutrient analysis and the contribution of the recipe for food-based menu systems.

Though each school foodservice operation may have its own recipe format, it is important that school foodservice recipes have components 1 - 9. The USDA recipe format can be found in *A Tool Kit for Healthy School Meals: Recipes and Training Materials*. USDA recipes also include a column where managers can record adjusted quantities of the recipe specific to their school foodservice operations.

Phases of Recipe Standardization

School foodservice managers are responsible for serving nutritionally adequate foods while being cost-effective and meeting meal pattern requirements for reimbursement. Using standardized recipes is an essential strategy to help managers accomplish this goal.

The recipe standardization process can be summarized in three phases: recipe verification, product evaluation, and quantity adjustment. Recipe verification consists of reviewing the recipe in detail, preparing it, verifying its yield, and recording changes. Product evaluation focuses on determining the acceptability of the product produced from the recipe. Changing the recipe yield and ingredient amounts occurs in the quantity adjustment phase. A recipe may go through these phases several times before becoming standardized at the necessary quantity for an operation. School foodservice managers and employees should work together on the recipe standardization process. Input from students and other customers is critical during the evaluation phase.

Decisions made during each phase determine the flow of a recipe through this recipe standardization process. Once a recipe has been standardized for an operation, the standardization process should not have to be repeated unless changes occur in availability of ingredients or equipment.

Quantity recipes published by USDA *(A Tool Kit for Healthy School Meals: Recipes and Training Materials*, *Quantity Recipes for School Food Service*, or *School Lunch Challenge I, II, and 97 Recipes*) have been tested in schools already and will require less work to standardize. Decisions with these USDA recipes will involve determining which food(s) to use when options or variations are suggested and which piece(s) of equipment will be used to prepare the product. Recipes that are brought in from home or are taken from magazines likely will require much more time to standardize. Working with home-size recipes usually involves such activities as determining whether the serving size on the recipe is appropriate for the customers for whom it will be served and calculating food-based menu contribution or nutrient content.

Recipe Verification Phase

The first phase of the recipe standardization process is the recipe verification phase. This phase includes four major processes: review the recipe, prepare the recipe, verify the recipe yield, and record changes to the recipe.

Review the Recipe

Begin by working on only one recipe at a time. Review the recipe to be standardized. Look to see if the recipe contains the following information:

1. Recipe title
2. Recipe category
3. Ingredients
4. Weight/volume for each ingredient
5. Preparation instructions (directions)
6. Cooking temperature and time, if appropriate
7. Serving size
8. Recipe yield
9. Equipment and utensils to be used

Reviewing the recipe for this information must be done before preparing the recipe. If information is missing, make note of any information that must be determined during the recipe preparation process. The amount of time needed for this review process will differ, depending on the source of the recipe.

Reviewing a recipe involves several steps. A checklist and decision guide are included in Appendix A (pp. 40 to 43) to assist with this review process. A practice exercise using the checklist also is included in Appendix A (pp. 44 to 47). The steps in the review process include:

1 *Review recipe title.*

Each recipe should have a title. The title should be descriptive of the product and easily understood by everyone who is working in the operation and your customers. It should be appealing to your customers as well.

2 *Review the recipe category.*

Recipes often are categorized by type. USDA's most recent school lunch recipe file, *A Tool Kit for Healthy School Meals: Recipes and Training Materials*, uses nine categories for grouping recipes. Those categories are grains/breads, desserts, main dishes, salads/salad dressings, sandwiches, breakfast, sauces and gravies, soups, and vegetables. When standardizing a recipe that is not part of the USDA recipe file, a recipe category should be assigned to facilitate organization of recipes. Using recipe categories makes it easier to locate recipes in a file box or on the computer.

3 *Review ingredients.*

The ingredient name should be clear so that the name of the product, product type/form (fresh, frozen, canned), and any preparation technique(s) (peeled, grated, minced, diced) are listed. Be sure to indicate size for preparation techniques, such as slicing and dicing (e.g., sliced ½ in., diced ¼ in.). If a specific brand of ingredient is used, note the name of the brand. List the ingredients in order of their use in preparing the recipe.

USDA recipes often have optional ingredients or variations included in the recipe. Decisions should be made in advance whether optional ingredients will be included or whether or not a variation of the recipe will be used instead of the main recipe. Care must be taken when substituting ingredients in a recipe since different forms of an ingredient (i.e., fruit packed in juice vs. fruit packed in syrup) may have very different nutrient contents. Reviewing the ingredients will assist in purchasing the proper amount and type of ingredients necessary to make the recipe.

When reviewing the ingredients, take note of items that may need pre-preparation one or more days in advance of service. For example, meats that are delivered frozen would need to be placed in the refrigerator to thaw several days in advance of preparation and service.

4 *Review weight/volume for each ingredient.*

A decision should be made whether weights, volumes, or both will be used to describe the amount of each ingredient needed for the recipe. When reviewing the recipe, if the ingredient quantity is not in the preferred weight or volume, conversions will need to be made before the recipe can be prepared. A table of weight and volume conversion is included in Appendix B (pp. 50). Avoid using packaging to describe the amount of a product, such as "1 package." Products can be packaged a number of ways and package size can vary depending on supplier. The amount of product in each package may vary depending on the product quality. Quantities should be listed in the easiest unit of measure (i.e., 1 lb 4 oz instead of 20 oz, ½ cup instead of 8 Tbsp). Standard abbreviations for units of measure should be used. A list of abbreviations for weights and volumes commonly used in foodservice is included in Appendix B (p. 50).

Ingredients included in a recipe may be listed as the as purchased (AP) or edible portion (EP) quantity. When fresh fruits and vegetables are processed, there is a loss in yield. This loss occurs because fresh items often have to be peeled and/or trimmed before they are ready for use in a recipe. The EP amount of fresh fruits and vegetables usually is less than the AP quantity. The USDA *Food Buying Guide for Child Nutrition Programs* provides yield information to assist with determining EP quantity of fresh fruits and vegetables.

For raw meats, the cooked EP amount of meat always is less than the raw AP quantity because moisture and fat are lost in the cooking process. Thus, the yield on meats that are cooked in an operation always is less than 100%. The yield of precooked or processed meats usually is at or near 100%, as no loss in cooking occurs. The USDA *Food Buying Guide for Child Nutrition Programs* provides yield information to assist with determining EP quantity of meat items in a recipe. Component credit will be calculated based on information in the USDA *Food Buying Guide for Child Nutrition Programs.*

For rice and pasta, the cooked quantity (both in volume and weight) is more than the dry quantity because water is absorbed in the cooking process. Thus, the yield on rice and pasta is greater than 100%. The USDA *Food Buying Guide for Child Nutrition Programs* provides yield information to assist with determining EP quantity.

When listing ingredient quantities in a recipe, remember that an ounce measurement may be either volume or weight. Ounce in volume is referred to a fluid ounce (fl oz); ounce in weight is termed ounce (oz). One cup = 8 fl oz of volume, but 8 fl oz of different foods varies in weight. (For example, 1 cup [8 fl oz] of apple cider = 8.7 oz in weight, 1 cup [8 fl oz] of chocolate pudding = 10.1 oz in weight.)

5 *Review preparation instructions (directions).*

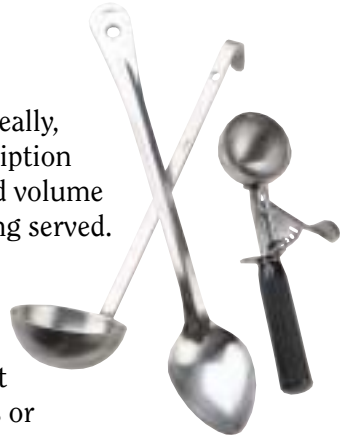
Detailed instructions should be included with each recipe to indicate how ingredients are to be combined. The directions should list, in order, the steps to be followed in preparing the recipe. Food safety guidelines, such as proper thawing, internal cooking, holding, serving, and storage temperatures, should be included in the directions to help ensure that the final product will be safe to eat.

All preparation and cooking terms should be reviewed to make sure staff members understand exactly what each means. If the correct procedures are not used, the final product will not be correct. Refer to the Glossary (pp. 31–33) for explanations of common terms used in recipes.

6 *Review cooking temperature and time.*

Cooking temperature and time should be identified on the recipe. Adjustments may be needed in the cooking temperature and time, depending on the equipment used to prepare the food.

The final internal temperature also should be identified. Specifying a final internal temperature for the product will ensure that products are cooked to the safe and proper degree of doneness. The most recent Food and Drug Administration (FDA) *Food Code* provides guidelines for cooking temperatures and times and final internal temperatures.



7 *Review serving size.*

The size of an individual serving should be listed on the recipe. Ideally, the weight of one serving will be identified in addition to a general description of serving size such as ½ cup or ⅛ pie. When possible, list the weight and volume of the serving. Assess whether serving size is appropriate for the age being served.

8 *Review recipe yield.*

Recipe yield refers to the amount of product that will be obtained when preparing a recipe. Recipe yield should be identified in total weight and/or volume, as well as a more general description such as 25 servings or 4 (12” x 20” x 4”) pans.

9 *Review equipment and utensils to be used.*

School foodservice kitchens come equipped with a variety of pieces of equipment. Often, different pieces of equipment can be used to achieve the same outcome. For example, a convection or conventional oven can be used for baking a casserole; a steamer, steam-jacketed kettle, or oven could be used for cooking rice or pasta. When reviewing a recipe, the exact piece(s) of equipment to be used for preparation and cooking the product should be identified.

The capacity of cooking equipment needs to be considered. For example, 1,000 rolls may need to be made, but if the mixer capacity will not hold that quantity of ingredients, then the recipe will need to be adjusted in batches that can be made in that mixer.

Cooking time and temperature should be determined for the specific piece of equipment that will be used to prepare the recipe. Pans to be used for cooking the product should be identified. The length, width, and depth of steam table pans should be included. The utensil(s) to be used for portioning and/or serving the product also should be listed on a recipe.

Prepare the Recipe

Once the recipe has been reviewed, it can be prepared. The USDA *A Tool Kit for Healthy School Meals: Recipes and Training Materials* recommends making the first version of the recipe to yield 25 servings. Throughout the process of making the recipe, keep careful notes about any variations. Record this information directly on the recipe for future reference. Cooking time to reach the internal temperature and product quality may vary slightly depending on the type and age of equipment.

Verify Yields

"Verify yields" includes verifying ingredient, recipe, and serving yields. When verifying a recipe, the AP quantity needed to yield the necessary EP quantity of an ingredient must be determined. Yields can vary depending on factors such as product quality, preparation techniques, and cooking times and temperatures. The USDA *Food Buying Guide for Child Nutrition Programs* contains ingredient yield information. Products from different manufacturers may differ in quality, and these quality differences may affect yield of the product. If great variation in ingredient yield occurs, school foodservice directors will need to work with their vendors to make sure product specifications are being met.

Verification of the recipe yield occurs once all of the ingredients have been combined and the recipe preparation completed. The yield can be determined several ways depending on the recipe. Recipe yield should be specified in both total quantity (weight and/or volume) and number of servings. Recipe yield can be determined by weighing the final product or measuring its volume.

The weight of a serving is determined by taking the weight of the total final product and dividing by the number of servings the recipe makes. Guidelines for portioning the product into individual servings should be given on the recipe. A serving utensil should be identified for each product. Weights of these actual servings should be compared to the calculated serving weight to ensure portioning is being done correctly. If the desired serving size is not achieved when verifying the yield, changes in the recipe, portioning, or ingredient amounts may be needed.

Record Changes

Notes of any changes or concerns should be recorded on the recipe during the verification phase. The format of the permanent recipe varies among operations. USDA recipes, such as those found in *A Tool Kit for Healthy School Meals: Recipes and Training Materials*, provide an excellent format for recipes. The more detailed the information is on the recipe, the more assurance of having a consistent quality product. Once the recipe verification phase has been completed, the recipe is ready for the next phase of the standardization process, the product evaluation phase.

Product Evaluation Phase

Product evaluation follows the recipe verification phase and is an important part of the recipe standardization process. It will help determine acceptability of the recipe and will provide objective information that can be used to further improve the recipe. Recipe evaluation should include the manager, foodservice staff members, and customers (can include students, teachers, administrators, and parents). Two types of evaluation occur in the evaluation phase: informal and formal.

Informal Evaluation

Informal evaluation involves only the school foodservice managers and employees. During informal evaluation, the product is prepared for the first time in the operation and an assessment is made of whether efforts to standardize the recipe should continue. A checklist is included in Appendix C (p. 52) to assist in the informal evaluation.

Three decisions are possible as a result of the informal evaluation of a recipe. First, if the product was found to be totally unacceptable based on several of the informal evaluation criteria, the decision may be made to discontinue any further work on standardizing the recipe. If most of the informal evaluation criteria were rated as acceptable, the recipe may go back to the verification phase to allow for changes to be made to the recipe and a new version of the recipe prepared. Finally, if all evaluation criteria were rated as acceptable in the informal evaluation, then the recipe may be prepared for formal evaluation.

Formal Evaluation

Formal evaluation occurs when the foodservice staff believes a recipe has potential for service in their operation. Procedures for conducting a formal evaluation of the recipe include:

1 *Select a group(s) of people to taste the sample recipe.*

School foodservice staff members, students, and other customers should evaluate recipes during the formal evaluation of the recipe. Keep the group size manageable when evaluating a recipe. Usually 10 or fewer people should sample a food item at a given time.

2 *Choose an evaluation form.*

The evaluation form used should be appropriate for the age of the group members who are sampling the food items. It should address the questions the school foodservice manager and employees want answered, be easy for the evaluators to read and complete, and should provide the information needed to adequately evaluate the product. Two sample evaluation forms are included in Appendix C (pp. 53-54) of this manual. One was developed for use with older students and staff members, and the other for younger children. Evaluation forms designed for specific food products can be obtained from the National Food Service Management Institute's (NFSMI) *Culinary Techniques for Healthy School Meals* training modules. When developing an evaluation form, consider: (1) what questions need to be answered, (2) who will fill out the form, and (3) how the results will be tallied. Here are some situations that may be encountered.

Situation 1: A new recipe for Vegetable Lasagna is being developed. Typically, foodservice staff members will first evaluate the lasagna. If staff members believe the product is acceptable, then students and other customers will be asked to evaluate it. The manager will need to decide what attributes should be evaluated. For this example, assume that the manager would like to have input from staff members on three major attributes: (1) Is the appearance acceptable? (2) Will the taste be well liked? and (3) Is the product moist enough? In this example, the manager is most interested in evaluations of appearance and moistness because, in the past, students have complained about the noodles being hard and looking overcooked on the top of the lasagna currently served. The foodservice staff evaluation form included in Appendix C (p. 53) could be used to evaluate these attributes. The manager might set criteria for acceptance of a recipe, such as expecting a score of 4 or 5 in the areas of acceptability and moistness (texture) for the recipe to be considered.

Situation 2: A low-fat recipe for Chocolate Cake is being considered for an elementary school. The product has been prepared and was evaluated positively by school foodservice staff members. The younger student evaluation form, included in Appendix C (p. 54), could be used to get comments from the elementary students on the product.

3 *Prepare the sample recipe.*

Once a group has been selected to sample the product(s) and an evaluation form has been selected, the recipe can be prepared for evaluation. Typically, recipes for sampling are made in small quantities such as for servings of 25.

4 *Set up the sampling area.*

The area to be used for sampling should be prepared with drinking water, eating and serving utensils, napkins, evaluation forms, and pens or pencils. If more than one food item is being evaluated, evaluators should be provided with unsalted soda crackers to nibble between foods. The cracker will help prevent flavor carryover from the first food. Seat evaluators apart to prevent them from talking with each other during the evaluation and influencing the ratings.

Frequently, students cannot be released from class to sample and evaluate recipes. The school foodservice manager may want to set up a separate testing area in the dining room and have students evaluate products during their meal period.

5 *Have participants taste and evaluate the food.*

Tasting procedures should be explained to those who will be evaluating the product, and the evaluation form should be reviewed with them prior to tasting. Remind evaluators of the importance of not making verbal comments about the food during the tasting. If asking for an evaluation of qualities such as moistness and/or temperature, explain what these terms mean.

6 *Summarize the results.*

The evaluation form used will help determine the way results are summarized. The evaluation form in Appendix C (p. 54) for elementary students requests "yes," "no," and "don't know" answers. Thus, the summary when using this evaluation form will be the number of "yes" responses as compared to the number of "no" responses. The other evaluation form included in Appendix C (p. 53) allows for evaluators to circle a number related to their rating of the product. Both a total score (sum of each numeric rating) and mean score (average of the numeric ratings) can be determined for each evaluator. Space is provided on the evaluation form to record these scores. Evaluator's ratings can be combined in several ways. A form for summarizing these ratings is included in Appendix C (p. 55). An average rating for each attribute (appearance, taste, etc.) can be calculated. An overall average total score (average of total scores from all evaluators) and an overall average score (average of mean scores from all evaluators) also can be calculated. These average scores can be compared to an operation's preset minimum scores for a product and to the scores of other recipes.

Appendix C (pp. 56-58) contains samples of completed evaluation forms for the Vegetable Lasagna example. Evaluation ratings of individual attributes as well as the total score and mean score are included. The total score for Evaluator #1 (Appendix C, p. 56) was 21. The total score was calculated by adding the ratings for each attribute together (4 + 5 + 5 + 3 + 4 = 21). The mean score for Evaluator #1 was 4.2. This score was calculated by dividing the total score by the number of attributes evaluated (21 ÷ 5 = 4.2). A score for each attribute (i.e., appearance, taste) would be calculated by adding the attribute ratings given by each evaluator and dividing that sum by the number of evaluators (in the example, texture received ratings of 3, 4, 3; its mean score would be [3 + 4 + 3] ÷ 3 = 3.1). A completed Evaluation Summary Form is included in Appendix C (p. 59), showing the three individual evaluator ratings and the summarization scores based on these ratings.

When evaluating a product, the total score, mean score, and individual attribute ratings should be reviewed. An evaluator's total score may be relatively high yet one attribute may be rated very low or lower than the other rated areas. When looking at the average scores by three evaluators of the Vegetable Lasagna (4.2, 4.8, 3.8), the overall evaluation scores are acceptable. However, when

reviewing the attribute ratings, the area of "texture (moistness)" has been consistently rated lower than all other areas (mean score = 3.1). Since moistness was of particular concern with this product, the manager might want to continue to work with the recipe to try to improve its texture (moistness).

7 *Determine future plans for the recipe based on evaluation results.*

Based on the formal evaluation results, the recipe will be accepted as is, rejected, or changed. If the formal evaluation comments are positive and the recipe is accepted as is, no further changes in ingredients will be needed. At this point a decision is made on whether the recipe is in the correct quantity or not. If a different yield is needed, the recipe moves to the quantity adjustment phase of the recipe standardization process. If no additional quantity adjustment is needed, the recipe is considered standardized. If the evaluation comments are very poor, the recipe likely will be rejected and no further work will be done to standardize it for an operation. If the evaluation comments were neither very good nor very poor, additional work on the recipe may be needed. This likely would mean that the recipe would go back through the verification phase with changes being made to ingredients, preparation instructions, or cooking procedures.

For example, the three sample evaluations of Vegetable Lasagna in Appendix C (pp. 56-58) indicate a possible concern for the moistness of the product. Moistness was identified as an area of concern before the evaluation was conducted. Since the evaluations of texture for the product were not very positive, the next step would be to review the recipe and preparation procedures. Maybe the lasagna was slightly overcooked and a shorter cooking time may improve the overall "moistness" of the lasagna. Once a way to improve the product has been identified, the change can be implemented and the product remade and evaluated again.

Quantity Adjustment Phase

When a recipe has been evaluated positively in the evaluation phase but is not in the desired quantity, it would move to the quantity adjustment phase of recipe standardization. There are several methods that can be used to adjust a recipe to get to the desired number of servings (yield). Some methods are done manually; others involve use of the computer.

Table 1: Comparison of Standardized Recipe Adjustment Methods

Method	Advantages	Disadvantages	Initial Recipe	Final Recipe
Factor method	◆ Can be used for any recipe ◆ Easy to use	◆ Math skills required	◆ Can start with any recipe and desired yield	◆ Final recipe can yield any number of servings desired
Direct reading tables method	◆ Minimal math skills needed	◆ Direct reading tables must be available ◆ Must know how to read tables ◆ Can only be used for yields in multiples of 25	◆ Must have yield of 25 servings or multiples of 25 servings	◆ Yield of 25 servings or multiples of 25 servings (i.e., 200, 175, 500)
Percentage method	◆ Further adjustments to a single recipe are easy after initial ingredient percentages are calculated	◆ Many steps in process ◆ Math skills required ◆ Must use weights for all ingredients ◆ Must calculate and adjust for handling loss	◆ Can start with any recipe and yield ◆ Initial recipe ingredients must be in weights	◆ Yield can be any amount desired ◆ All final ingredients are in weights
Computerized recipe adjustment	◆ Adjustments easy after recipe entered on computer ◆ No math skills needed	◆ Computer programs can be expensive ◆ Some programs require ingredients to be entered in weights only ◆ Ingredient quantities may be listed in decimals	◆ Can start with any recipe and desired yield	◆ Final recipe can yield any number of servings desired

As shown in Table 1, there are advantages and disadvantages to each method. The decision of which method is used is usually made by the foodservice director based on resources available and needs of the foodservice operation. Recommendations in *A Tool Kit for Healthy School Meals: Recipes and Training Materials* suggest first making a recipe for 25 servings and then reproducing at 50 and 100 servings before increasing the recipe to the quantity needed.

Factor Method of Recipe Adjustment

The factor method for adjusting recipes involves mathematical calculations and is the most commonly used method of manual adjustment. Additional information related to using the factor method can be found in *A Tool Kit for Healthy School Meals: Recipes and Training Materials* and *Quantity Recipes for School Food Service*. The factor method consists of three basic steps. They are:

1 *Determine the "factor" to be used.*

The factor is a multiplier that will be used to increase or decrease the quantity of ingredients in a recipe. The factor is determined by dividing the desired yield (in number of servings) by the current recipe yield (in number of servings).

Desired yield ÷ Current yield = Factor

For example, if a manager wishes to make 250 servings and the current recipe produces 100 servings, divide 250 by 100; the factor would be 2.5.

250 ÷ 100 = 2.5

2 *Multiply each ingredient quantity by the "factor."*

Each ingredient quantity in a recipe is multiplied by the factor to determine the ingredient quantity needed to produce the new yield. Ingredient quantities given as fractions would need to be converted to decimals prior to doing this calculation. Appendix D (p. 62) contains a fraction-to-decimal conversion chart. In addition, school foodservice managers may find it easier to convert quantities that are in multiple units (i.e., quarts and cups) to one unit (cups) before doing calculations.

For example, if the goal is to make 250 servings and the base recipe yields 100 servings, the "factor" would be 2.5. If the original recipe calls for ½ cup lemon juice, 8 oz sour cream, and 1 Tbsp + 1 tsp chopped parsley, the math is as follows:

Lemon juice:	.5 cup	x	2.5	=	1.25 cups lemon juice
(original amount)	x	(factor)		=	(amount needed for 250 servings)

(Note: Change ½ cup to the decimal .5 before calculating.)

Sour cream:	8 oz	x	2.5	=	20 oz sour cream
(original amount)	x	(factor)		=	(amount needed for 250 servings)

Parsley:	4 tsp	x	2.5	=	10 tsp parsley
(original amount)	x	(factor)		=	(amount needed for 250 servings)

(Note: Change 1 Tbsp + 1 tsp to all tsp [4] before calculating.)

4 *Change amounts into more common measurements.*

Often, the result of the mathematical calculations is a quantity that is hard to measure or not commonly used. These quantities may need to be converted to a more common measurement. Rounding to the nearest common measure also may occur. Use tables found in Appendix D (pp. 62-63) to assist with such conversions.

For example:
The lemon juice is listed as 1.25 cups; the more common measurement would be 1¼ cups.
The sour cream could be changed to 1 lb 4 oz (or 1.25 lb) for easier measurement.
(Note: 16 oz = 1 lb)
The quantity of parsley might be changed to 3 Tbsp + 1 tsp for ease in measuring.

Information for Adjusting Recipes

Be aware that several categories of ingredients require special attention when adjusting recipes because the amount needed for these ingredients often does not increase proportionately to the increase in other ingredients. Ingredients that may not increase proportionately include herbs/spices, leavening agents (baking soda, baking powder, yeast), thickening agents (flour, cornstarch, eggs), and liquid (water, juice). Factors such as exposed surface area, evaporation, and handling loss can change the total amount needed of an ingredient when the recipe quantity is changed. In some cases, additional amounts of a product are needed; in others less is needed. Only by preparing the recipe and evaluating the product can a determination of changes needed be made. The text, *Food for Fifty*, provides information on the proportion of ingredients such as leavening agents, seasonings, thickening agents, and gelatins that could be used in a recipe.

Other factors also need to be considered when adjusting recipe quantities. The quality of some food items, such as meringues, may deteriorate when too large a quantity is produced at one time. Size of equipment will impact the batch size of a recipe as well. For example, if 60 gallons of soup are needed, but the institution has only a 50-gallon steam-jacketed kettle in which to make the soup, adjusting the recipe to 30 gallons and preparing two batches is preferable.

Practice Exercises for Factor Method of Recipe Adjustment

Example #1:

For the Cream of Chicken Soup recipe below, determine the amount of each ingredient needed to make 175 servings.

Cream of Chicken Soup **Desired Yield: 175** **Current Yield: 50** **Factor: _____**

Ingredients	50 Servings (Recipe Amount)	Converted Quantities	Factor	175 Servings (Calculated Amount)	175 Servings (Common Measure)
Margarine	12 oz				
Flour	2½ cups				
Chicken stock	2 qt + 2 cups				
Milk, low fat	2 gal + 2 qt				
Cooked chicken	3 lb 2 oz				

Example #2:

For the Broccoli Salad recipe below, determine the amount of each ingredient needed to make 225 servings.

Broccoli Salad **Desired Yield: 225** **Current Yield: 100** **Factor: _____**

Ingredients	100 Servings (Recipe Amount)	Converted Quantities	Factor	225 Servings (Calculated Amount)	225 Servings (Common Measure)
Fresh broccoli	13 lb 8 oz				
Mayonnaise	2 qt				
Sugar	2 lb				
White vinegar	½ cup				
Milk, low fat	⅓ cup				
Walnuts, chopped	1 qt 3½ cups				

Answer Key Practice Exercises for Factor Method of Recipe Adjustment

Example #1

Cream of Chicken Soup **Desired Yield: 175** **Current Yield: 50** **Factor: 3.5**

Ingredients	50 Servings (Recipe Amount)	Converted Quantities	Factor	175 Servings (Calculated Amount)	175 Servings (Common Measure)
Margarine	12 oz	12 oz or .75 lb	3.5	42 oz or 2.62 lb	2.62 lb or 2 lb 10 oz
Flour	2½ cups	2.5 cups	3.5	8 ¾ cups	8 ¾ cups
Chicken stock	2 qt + 2 cups	10 cups	3.5	35 cups	2 gal + 3 cups
Milk, low fat	2 gal + 2 qt	10 qt	3.5	35 qt	8 gal + 3 qt
Cooked chicken	3 lb 2 oz	3.125 lb or 50 oz	3.5	10.94 lb or 175 oz	10.94 lb or 10 lb 15 oz

Review of Steps Using the Factor Method

Step 1: Determine the "factor" to be used.
Remember, the factor is determined by dividing the desired yield in servings (175) by the current yield in servings (50).

175 ÷ 50 = 3.5

Step 2: Multiply each ingredient quantity by the "factor."
When recipe quantities are given as two units of measurement, managers will find it easier to calculate the new yield if the entire recipe quantity is converted into the smaller of the quantities given. Fractions should be converted to decimals. For example, the Cream of Chicken Soup recipe uses 2½ cups of flour; converting the ½ to the decimal .5 (see Appendix D, p. 62) should be done before further calculations are made. The recipe also uses 2 qt and 2 cups of chicken stock. Converting this quantity to all cups (10 cups) (see Appendix B, p. 50) and then multiplying by the factor will be much easier than multiplying the 2 qt by the factor and the 2 cups by the factor and then combining these new quantities. The quantity of cooked chicken is listed in pounds and ounces. Converting the ounces to a decimal part of a pound (see Appendix D, p. 63) or to all ounces (1 lb = 16 oz) will simplify this math.

Step 3: Change amounts into more common measurements.
After multiplying by the factor, ingredient quantities may need to be converted into more common measures. For example, the mathematical calculations in Step 2 indicated 35 cups of chicken stock would be needed for 175 servings. Using the information in Appendix B (p. 50), the 35 cups can be converted to a more common measure: 2 gal and 3 cups (i.e. 35 cups = 8 qt and 3 cups; 8 qt = 2 gal). Decimal parts of a pound, such as the results for margarine and cooked chicken, could be converted back to pounds and ounces, if needed (see Appendix D, p. 63). For example, the 42 oz of margarine divided by 16 (oz in a lb) results in the more common measure of 2.62 lb. If using a scale that measures in pounds and ounces, the .62 lb can be converted to 10 oz (see Appendix D, p 63).

Example #2:

Broccoli Salad **Desired Yield: 225** **Current Yield: 100** **Factor: 2.25**

Ingredients	100 Servings (Recipe Amount)	Converted Quantities	Factor	225 Servings (Calculated Amount)	225 Servings (Common Measure)
Fresh broccoli	13 lb 8 oz	13.5 lb	2.25	30.375 lb	30 lb 6 oz
Mayonnaise	2 qt	2 qt	2.25	4.5 qt	4 qts + 1 pt
Sugar	2 lb	2 lb	2.25	4.5 lb	4 lb 8 oz
White vinegar	½ cup	.5 cup	2.25	1.125 cups	1 cup + 2 Tbsp
Milk, low fat	⅓ cup	.333 cup	2.25	.759 cup	¾ cup
Walnuts, chopped	1 qt + 3½ cups	7.5 cups	2.25	16.875 cups	4 qt + ⅞ cup

Review of Steps Using the Factor Method

Step 1: Determine the "factor" to be used.
Remember, the factor is determined by dividing the desired yield in servings (225) by the current yield in servings (100).

225 ÷ 100 = 2.25

Step 2: Multiply each ingredient quantity by the "factor."
Several conversions could be done before multiplying to simplify the math. For example, the 13 lb 8 oz of fresh broccoli could be converted to 13.5 lb (see Appendix D, p. 63); the ½ cup of white vinegar could be converted to .5 cup (see Appendix D, p. 62).

Step 3: Change amounts into more common measurements.
Once the new quantities have been calculated, conversion to more common measures may be needed. For example, if an operation weighs ingredients in pounds and ounces, the 30.375 lb of fresh broccoli could be converted to 30 lb 6 oz (see Appendix D, p. 63). Some calculations may need to be rounded to the next closest unit. The calculations for milk indicated that .759 cup was needed; using information on converting fractions to decimals found in Appendix D (p. 62), this amount would be closest to ¾ cup.

Computerized Recipe Adjustment

Another way recipes can be adjusted is using computer software. The manual ways of adjusting recipes can be very time consuming depending on which method is used, the length of the recipe, and its complexity. Computer software packages use one or more of the manual methods of adjusting recipes as the basis for their programming.

The CD-ROM included in these training materials contains a *Recipe Adjuster* that can be used to quickly perform the math calculations involved in recipe adjustment. The factor method is used in this program for adjusting recipe quantity.

USDA has approved several nutrient analysis software programs for use in school foodservice operations (see http://schoolmeals.nal.usda.gov:8001/software/index.html). Many of these software programs also can perform recipe adjustment. These software programs are designed to meet the requirements of school foodservice operations and may include menu planning; recipe and menu analysis; recipe adjustment; weighted or unweighted nutrient analysis; food production, service, and calendar reports; nutrition label data conversion; and age/grade-specific nutrient standards for Food-Based and Nutrient Standard Menu Planning Systems, in addition to nutrient analysis.

Benefits of using computerized recipe adjustment programs include:

- Recipe adjustment is done much faster and more accurately, especially when different portion sizes are served to various age/grade students.
- Menu planning is more flexible because menus can be analyzed and modified easily.
- Food information is specific to school foodservice programs.
- Menus can be analyzed and evaluated for specific nutrients.

Disadvantages of computerized recipe adjustment programs include:

- Computer hardware and software can be expensive.
- Some programs require all ingredients to be entered as weight.
- Some programs will not round the adjusted quantity and thus may give unrealistic measurements, such as 40 lb + 1 oz.
- Time and resources will be needed to enter all current recipes and train employees on software use.

When using software programs for adjusting recipes, the following questions should be considered:

- Does the program allow printing of recipes in a format that is usable by foodservice staff members?
- Will the program adjust the recipe for various portion sizes for various age/grade groupings?
- Does the program allow the manager to enter any ingredient amounts? Does it force use of one unit of measure (i.e., 6.5 lb instead of 6 lb 8 oz)?
- If fractions are used in recipes, does the program allow entering and printing of ingredient amounts in fractions, or does it print them only in decimals? If decimals are used, do staff members understand decimal amounts? Can they convert decimals to measurable amounts?
- How easy is the program to learn?
- What resources are available to help foodservice personnel learn the program?
- How much time is required to enter recipes into the system?
- Will the software allow the recipe to be calculated in “batches” or several smaller quantities?
- Can the program be interfaced with vendor software for purchasing and recipe costing?

RECIPE STANDARDIZATION VIDEO

The recipe standardization video was developed for use as an in-service education tool with school foodservice employees. The 20-minute video was designed to raise awareness of the importance of using standardized recipes and motivate personnel to follow standardized recipes. The video can serve as a review for experienced foodservice assistants and as an introduction for new workers during their orientation period.

Suggested In-service Training Program Outline

A. Test employee knowledge regarding standardized recipes (use test on p. 27).
B. Show video.
C. Discuss.
D. Review answers to test.
E. Have employees set at least one goal related to recipe standardization.

Materials Needed for In-service Training Session

- VCR and television
- Video
- Tests
- Pens or pencils
- Discussion questions
- Example of a non-standardized recipe

Discussion Questions and Possible Answers

1. The video does not tell what really caused Kathy and her staff to be short 50 servings of the Fiesta Casserole. Discuss what you think may have caused the shortage.

Possible causes of shortage might have been:
- *not measuring ingredients correctly*
- *not putting correct quantity in each pan*
- *not portioning correctly*
- *more students served than planned*

2. What does it mean to have a standardized recipe in our operation?

"A standardized recipe is one that has been tried, adapted, and retried several times for use by a given foodservice operation, and has been found to produce the same good 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." (Source: USDA A Tool Kit for Healthy School Meals: Recipes and Training Materials, p. 37).

3. What are the phases of recipe standardization, and what occurs in each?

There are three phases in the recipe standardization process:
- *Verifying*
- *Evaluating*
- *Adjusting*

Verifying *the recipe includes reviewing the recipe's ingredients and directions, preparing the recipe, and checking the yield.* ***Evaluating*** *is having foodservice staff and customers taste and rate the quality of the product.* ***Adjusting*** *a recipe involves the calculations of the ingredient quantities needed for the desired yield.*

4. What are examples of recipes in our operation that are standardized and what are examples of recipes that are not standardized?

Examples of non-standardized recipes are those that have not been tried and tested and found to produce a consistent product.

Recipe Standardization Test

1. A standardized recipe is:
   a. A recipe developed by USDA.
   b. Any published quantity recipe.
   c. A recipe that is tried and adapted to your operation.
   d. All of the above.

2. A standardized recipe will produce a consistent yield each time the recipe is followed.
   a. True
   b. False

3. The recipe standardization process typically starts with which phase?
   a. Verifying the recipe.
   b. Evaluating the product.
   c. Adjusting the quantity.

4. USDA recipes need to be standardized for each school foodservice operation.
   a. True
   b. False

5. A recipe calls for 2 lb of chopped onion, which is referred to as the:
   a. Edible portion (EP).
   b. As purchased portion (AP).
   c. Yield.

6. Evaluation of recipe occurs after the recipe is standardized.
   a. True
   b. False

7. Using three 9-lb packages of ground beef when the recipe calls for 30 lb of ground beef is:
   a. The appropriate amount to use.
   b. Too little meat to use; additional meat should be obtained.
   c. Too much meat to use; some meat should be held for use in another recipe.

8. Serving incorrect portions of food items could result in loss of USDA meal reimbursement.
   a. True
   b. False

9. Using standardized recipes can result in:
   a. Better control of inventory.
   b. Better control of costs.
   c. Fewer mistakes.
   d. All of the above.

Answer Key for Recipe Standardization Test

1. A standardized recipe is:
   c. A recipe that is tried and adapted to your operation; a recipe does not become standardized until it has been tested and adapted to your operation; published quantity recipes are not standardized.

2. Standardized recipes will produce consistent yield each time when the recipe is followed.
   a. True. Once a recipe is standardized, it will produce consistent yield each time, assuming the recipe is followed (i.e., correct ingredients are used in correct quantities and directions are followed).

3. The recipe standardization process typically starts with which phase?
   b. Verifying. The recipe standardization process starts with verifying the recipe, which includes reviewing the recipe and verifying the yield.

4. USDA recipes need to be standardized.
   a. True. USDA recipes are quantity recipes that have been tested; they are not standardized until they have been tested and adapted to your operation.

5. A recipe calls for 2 lb of chopped onion, which is referred to as the:
   a. Edible portion (EP). The quantity of food product that is ready to eat is termed the edible portion; this is the quantity of onion after it is cleaned and chopped.

6. Evaluation of recipe occurs after the recipe is standardized.
   b. False. Evaluation of the recipe should occur during, not after, the recipe standardization process.

7. Using three 9-lb commodity packages of ground beef when the recipe calls for 30 lb of ground beef is:
   b. Too little meat to use, additional meat should be obtained; three 9-pound packages contain only 27 total pounds of meat; more ground beef would be needed.

8. Serving incorrect portions of food items can result in loss of USDA meal reimbursement.
   a. True. Guidelines exist for what constitutes a reimbursable meal; serving less than expected quantities of food can result in loss of meal reimbursement.

9. Using standardized recipes can result in:
   d. All of the above. Using standardized recipes results in a consistent product, which means better control of inventory and costs, and fewer mistakes by production staff.

RECIPE STANDARDIZATION CD-ROM

The CD-ROM was developed as an interactive training program for school foodservice managers to help increase knowledge and skills related to recipe standardization. The CD-ROM contains some of the same information that is included in the manual. The CD-ROM material, however, is presented in an interactive way to facilitate learning.

The visual layout of the CD-ROM is patterned after a recipe box with labeled tabs. Each section of the CD-ROM is identified on a tab at the top of the screen. There are six tabs with lessons or information: home, recipe standardization, recipe adjuster, resources, help, and quit. Clicking on a tab will take the user to that location in the CD-ROM.

Overview of CD-ROM Content:

The CD-ROM consists of two major sections. One provides detailed information about the recipe standardization process and the other, the *Recipe Adjuster*, provides a means for foodservice managers to enter recipes and have the quantity of each ingredient adjusted via computer. The CD-ROM also includes resources and help sections.

The recipe standardization section of the CD-ROM provides interactive lessons on the benefits of standardized recipes and component information that should be included on a recipe. Managers are "walked-through" the recipe standardization processes of recipe verification, product evaluation, and quantity adjustment.

The *Recipe Adjuster* included on the CD-ROM is intended to simplify the process of doing the mathematical calculations involved in changing the desired yield of a recipe. The *Recipe Adjuster* will not replace a computerized recipe program, but it will facilitate mathematical calculations for those who do not have a computerized recipe adjustment program. Recipes can be stored in their adjusted quantities and printed as needed.

Navigation Through the Recipe Standardization Lessons:

Navigating the CD-ROM lessons on recipe standardization is facilitated by directions written in blue on the bottom of each screen. Each screen also contains yellow directional arrows (with the words, "back" and "next") in the bottom right corner of the screen that will allow the user to go forward or backward within the program. The recipe standardization cycle icon, which appears in the lower left corner of the screen, also serves as a navigational tool. One can move between the recipe verification, product evaluation, and quantity adjustment phases of the recipe standardization lessons by clicking on one of the arrows in the cycle icon.

A minimum number of page layout formats were used to ease user navigation of the lessons. The most common page layout is a two-column format with colored lines of text in a column on the left side of the page. Clicking on a line of text will result in new material appearing on the right side of the screen.

Some of the screens will have a mini-lesson within a given page. Those lessons will have a gray "next" box in the graphic that will facilitate progress through the lesson.

Each phase of the recipe standardization process is shown as a flow chart. When the steps in a particular flow chart are all shown on the screen, the user has the option of repeating the flow chart lesson by clicking on the gray "repeat" box in the graphic or moving to the next phase in the recipe standardization process by clicking on the yellow "next" arrow. When the entire flow chart for a given phase of the recipe standardization process is completed, some of the boxes in the flow chart will be highlighted in red and the words, "see example", will appear. Clicking on the red highlighted box will allow the user to view an example of that part of the flow chart.

Navigation Through the Recipe Adjuster:

The *Recipe Adjuster* allows users to enter a new recipe or retrieve a previously saved recipe. The user is prompted for the information needed for entering a new recipe or can select the recipe to be retrieved. When entering a new recipe, the user will be asked to provide a title, the current yield in number of servings, and the serving size.

The *Recipe Adjuster* divides recipe information into three columns: ingredients, amounts/units, and directions. The user clicks on the location in which information is to be entered. A box appears on the right side of the screen and prompts the user for the needed information. Entering the name of an ingredient involves selecting the letter of the alphabet corresponding to the first letter of the ingredient name and selecting the ingredient from the list provided. Ingredient quantity can be entered as a whole number, decimal, or fraction. Directions are entered as text in the space indicated.

Adjusting the quantity of a recipe is done by clicking on the "alter yield" button on the lower right hand portion of the screen. The user indicates the new desired yield, presses enter, and clicks on the "alter" button. The ingredient quantities then are adjusted automatically using the factor method of recipe adjustment.

The user has the option of viewing the recipe in an enlarged version, printing the recipe, and/or saving it. The file name for the saved recipe will indicate both the recipe name and its yield.

GLOSSARY

Al dente—an Italian cooking term that means to cook until tender but still slightly firm. Translated literally "to the tooth," the term is usually used to describe cooking pasta, but also can apply to vegetables.

As Purchased (AP)—amount of food item as it is purchased before any preparation has been completed.

Bake—to cook by dry heat, usually in an oven. A suitable cooking method for bread and many other foods.

Baste—to spoon liquids, sauce, or meat juice over food to keep it moist during cooking and to add flavor.

Beat—to mix vigorously by hand or with mixing equipment to make a mixture light, fluffy, or smooth.

Blend—to mix two or more ingredients.

Boil—to cook rapidly in water or a liquid so that the bubbles rise and break on the surface.

Braise—to cook slowly in a covered container with a small amount of liquid or water. It is a good method for less tender cuts of meat.

Bread—to coat food with bread crumbs, cracker crumbs, or flour before cooking.

Broil—to cook by direct heat from a flame, electric unit, or glowing coals; a suitable cooking method for tender meat cuts.

Brown—to cook food, generally meat, until it is uniformly brown on all sides.

Chill—to cool a food with ice water or refrigeration.

Chop—to cut food into small pieces with a knife or chopping equipment.

Combine—to mix together two or more ingredients.

Cream—to work foods such as shortening and sugar together with a spoon or mixer until soft, fluffy, and thoroughly blended.

Crumb—to cover a food with bread (or cracker) crumbs or to break food, such as bread, into crumbs.

Cut in—to mix solid fat, such as butter or margarine, into dry ingredients with a cutting motion so that the fat remains in small particles.

Dice—to cut into small cubes with a knife or chopping equipment.

Dredge—to coat a food by dipping in crumbs, flour, cornmeal, sugar, or other coatings.

Edible Portion (EP)—amount of a food item that is ready for use in a recipe after all pre-preparation.

Fold—to combine several food ingredients into a mixture by gently turning the mixture, with a minimum of motions, until the ingredients are blended.

Fry—to cook in fat over heat in a skillet, pan, or griddle, or in a fryer.

Glaze—to coat with a mixture to produce a glossy appearance on the food.

Grill—to cook uncovered over direct heat on a griddle or pan, removing fat as it accumulates.

Grind—to chop or pulverize food, such as meat, into small particles by using a food chopping device or meat grinder.

Julienne—to cut food in narrow, lengthwise strips, resembling matchsticks.

Knead—to work with dough, such as bread dough, by pressing, folding, and stretching to develop the dough structure.

Leaven—to cause food, such as bread, to rise and increase volume by adding a leavening agent, such as yeast or baking powder.

Marinate—to treat food with a marinade to add flavor, and when used with meats, to provide some tenderizing action.

Melt—to turn a solid food into liquid by heating.

Mince—to finely chop food, such as garlic, into very small pieces.

Mix—to blend or combine with two or more foods or ingredients.

Parboil—to boil in water briefly as a preliminary cooking step. May be used with vegetables and meat.

Pare—to thinly trim off the outer covering or skin of a food, such as potatoes.

Peel—to strip off the outer covering of a food, such as oranges.

Punch down—to remove air bubbles from risen yeast dough by pushing the dough down with the fists.

Reconstitute—to bring back a concentrated food, such as a juice concentrate, to the original strength—or dry food, such as nonfat dry milk, to the original state—by adding liquid.

Rehydrate—to add fluids back into a dried food, such as dehydrated onions.

Roast—to bake without water, uncovered, in an oven.

Scald—to heat a liquid, such as milk, to a temperature just below the boiling point. Tiny bubbles will appear around the edge of the pan.

Shred—to cut or grate foods into narrow strips.

Simmer—to cook in liquid that is kept just below the boiling point.

Slice—to cut a food with a knife or slicing equipment.

Standardized recipe—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 good 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.

Steam—to cook food with steam, with or without pressure.

Stir—to mix with a circular motion.

Stir-fry—to cook quickly, in a small amount of oil or water, tossing and stirring lightly to preserve the shape of the food.

Whip—to rapidly beat a food, such as eggs or cream, incorporating air to lighten the mixture and to increase its volume. Usually whipping is done with a whisk, fork, or mixing equipment.

Yield—amount of product resulting at the completion of the preparation process.

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Note: All Websites active1/02.

RESOURCES

Resources from USDA Food and Nutrition Services (http://www.schoolmeals.nal.usda.gov):

- Child Care Recipes: Food for Health and Fun
- A Tool Kit for Healthy School Meals: Recipes and Training Materials
- Quantity Recipes for School Food Service
- A Menu Planner for Healthy School Meals
- Approved Software

Resources from the National Food Service Management Institute (http://www.nfsmi.org):

- Cooking for the New Generation
- Creating Healthy Menus for the Mainline, Part II
- Culinary Techniques for Healthy School Meals
- Healthy Cuisine for Kids
- On the Road to Professional Food Preparation

Other Resources

Cross, E. V., and Louisiana Department of Education. (1997). *Louisiana Food Service Training Program Phase I.* (Rev. ed.). Baton Rouge: Louisiana Department of Education Bureau of Food and Nutrition Services.

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Minnesota Department of Education. (1996). *Minnesota Lunch Power*. (2nd ed.). Available at: http://schoolmeals.nal.usda.gov:8001/Recipes/minnesota.html

Note: All Websites active1/02.

APPENDIX A

Checklist, Decision Guide, and Practice Exercise for Verification Phase

Checklist for Reviewing Recipes During Recipe Verification Phase of Recipe Standardization Process

Review Step	Questions	Yes	No	N/A	Action Needed
Title	Does the title reflect content?				
	Is title appealing to customers?				
Recipe category	Are recipes organized by USDA meal pattern or operation-defined category?				
Ingredients	Are all the ingredient names clear?				
	Are the ingredients listed in the order they are used?				
	Does each ingredient name indicate product type/form (i.e., fresh, frozen, canned [drained, packed in syrup, packed in juice], dried, dehydrated, cooked)?				
	Does each ingredient name indicate the pre-preparation technique to be applied to the ingredient (i.e., peeled, sliced, chopped, diced, grated, minced) and size, if applicable (¼ in., ½ in.)?				
Weight or volume	Is there a weight or volume listed for each ingredient?				
Instructions (directions)	Do the written instructions (directions) clearly describe exactly what needs to be done to prepare the recipe?				

N/A = Not Applicable

Review Step	Questions	Yes	No	N/A	Action Needed
Cooking temperature and time	Is the cooking temperature stated on the recipe?				
	Is the cooking time stated on the recipe?				
Serving size	Is the serving size stated on the recipe?				
	Is the serving weight given?				
	Are directions given for how to divide the product into individual servings?				
Recipe yield	Is the recipe yield indicated?				
Equipment	If preparation equipment is needed, is it indicated?				
	Is the cooking equipment indicated?				
	Is the serving utensil listed?				

N/A = Not Applicable

Decision Guide for Checklist for Reviewing Recipes During Recipe Verification Phase of Recipe Standardization Process

Review Step	Questions	Yes	No	N/A	Action Needed
Title	Does the title reflect content?				◆ If yes, leave the title as listed, move to next title question. ◆ If no, consider new title.
	Is the title appealing to customers?				◆ If yes, leave title as listed, move to next review step. ◆ If no, consider alternate title to be used on menu.
Recipe category	Are the recipes organized by USDA meal pattern or operation-defined category?				◆ If yes, move to next review step. ◆ If no, identify recipe category on recipe.
Ingredients	Are all the ingredient names clear?				◆ If yes, move to next ingredient question. ◆ If no, rewrite ingredient name.
	Are the ingredients listed in the order they are used?				◆ If yes, move to next ingredient question. ◆ If no, change order so ingredients are listed in order used.
	Does each ingredient name indicate product type/form (i.e., fresh, frozen, canned [drained, packed in syrup, packed in juice], dried, dehydrated, cooked)?				◆ If yes, move to next ingredient question. ◆ If no, add product type information to ingredient name.
	Does each ingredient name indicate the pre-preparation technique to be applied to the ingredient (i.e., peeled, sliced, chopped, diced, grated, minced) and size, if applicable (¼ in., ½ in.)?				◆ If yes, move to next review step. ◆ If no, indicate the preparation technique to the ingredient name.
Weight or volume	Is there a weight or volume listed for each ingredient?				◆ If yes, move to next review step. ◆ If no, indicate weight (preferred) or volume for each ingredient.
Instructions (directions)	Do the written instructions (directions) clearly describe exactly what needs to be done to prepare the recipe?				◆ If yes, move to next review step. ◆ If no, write specific directions for preparing the recipe.

N/A = Not Applicable

Review Step	Questions	Yes	No	N/A	Action Needed
Cooking temperature and time	Is the cooking temperature stated on the recipe?				◆ If yes, move to next cooking temperature and time question. ◆ If no, write down the cooking temperature.
	Is the cooking time stated on the recipe?				◆ If yes, move to next review step. ◆ If no, write cooking time on the recipe.
Serving size	Is the serving size stated on the recipe?				◆ If yes, move to next serving size question. ◆ If no, the serving size will need to be determined when the recipe is prepared as part of the justification phase and written on recipe.
	Is the serving weight given?				◆ If yes, move to next serving size question. ◆ If no, the serving size weight will need to be determined when the recipe is made during the justification phase and written on recipe.
	Are directions given for how to divide the product into individual servings?				◆ If yes, move to next review step. ◆ If no, write the directions for portioning the product.
Recipe yield	Is the recipe yield indicated?				◆ If yes, move to next review step. ◆ If no, the yield will need to be determined when the recipe is made during the justification phase and written on recipe.
Equipment	If preparation equipment is needed, is it indicated?				◆ If yes, move to next equipment question. ◆ If no, write down what size pan should be used.
	Is the cooking equipment indicated?				◆ If yes, move to next equipment question. ◆ If no, write down which piece(s) of equipment should be used.
	Is the serving utensil listed?				◆ If yes, review is complete. ◆ If no, indicate the serving utensil.

N/A = Not Applicable

Practice Exercise for Recipe Verification

A school foodservice operation is using the following recipe for their middle and high school students. Use the checklist to review this recipe and make recommendations for improvements needed.

Jane's Rice Casserole

HS		MS	
4 1/2 lb		Rice	2 1/4 lb
10 #	Broccoli	5 #	
1 can	Mush Soup	1/2 can	
6 cups	Milk	3 cups	Mix Together
3 1/4 lb	Cheese	1 2/3 lb	Bake 350 for 1 hour
1/2 cup	Onion	1/4 cup	
to taste	Salt	to taste	

Pour into small pans that have been greased.

1 1/2 cup bread crumbs, 1/4 cup butter - Put on top

Review Step	Questions	Yes	No	N/A	Action Needed
Title	Does the title reflect content?		X		Consider more descriptive title, such as "Broccoli, Rice, and Cheese Casserole"; because broccoli is the predominant ingredient, its name should go first in the title.
	Is title appealing to customers?		X		Consider more appealing title, such as "Broccoli, Rice, and Cheese Casserole."
Recipe Category	Are recipes organized by USDA meal pattern or operation-defined category?		X		Indicate recipe category; because of amount of vegetable in this recipe, the category likely would bea "vegetable" recipe.

Review Step	Questions	Yes	No	N/A	Action Needed
Ingredients	Are all the ingredient names clear?		X		Clarify name for "Mush soup"; change to "Cream of Mushroom soup."
	Are the ingredients listed in the order they are used?	X			No change needed because ingredients are listed in order.
	Does each ingredient name indicate product type/form (i.e., fresh, frozen, canned [drained, packed in syrup, packed in juice], dried, dehydrated, cooked)?		X		Ingredient type/form might be specified as: ◆ Broccoli—cuts, frozen ◆ Rice—long-grain, cooked ◆ Milk—reconstituted, skim ◆ Cheese—American ◆ Onion—dehydrated
	Does each ingredient name indicate the pre-preparation technique to be applied to the ingredient (i.e., peeled, sliced, chopped, diced, grated, minced) and size, if applicable (¼ in., ½ in.)?		X		Pre-preparation information might be specified as: ◆ Cheese—grated ◆ Onion—minced ◆ Butter—melted
Weight or volume	Is there a weight or volume listed for each ingredient?		X		Specify the exact amount of salt needed; do not leave as "to taste" Suggested quantities might be 1 tsp with the 4½ lb rice mixture and ½ tsp with the 2¼ lb rice mixture. Specify can size for soup.
Instructions (directions)	Do the written instructions (directions) clearly describe exactly what needs to be done to prepare this recipe?		X		Write specific directions; suggested directions might be as follows: ◆ Combine rice, broccoli, undiluted soup, milk, cheese, onion, and salt. ◆ Spray vegetable pan spray on 12"x20"x2½" steam table pan(s). ◆ Spread 12¼ lb of mixture into one steam table pan. ◆ Mix bread crumbs and melted butter. ◆ Sprinkle 1¾ cups of bread crumb mixture on each pan.
Cooking temperature and time	Is the cooking temperature stated on the recipe?		X		Cooking temperature is listed. Final internal temperature could be added.
	Is the cooking time stated on the recipe?	X			No change needed because cooking time is listed.

Review Step	Questions	Yes	No	N/A	Action Needed
Serving size	Is the serving size stated on the recipe?		X		Specify serving size; for this recipe, suggested serving size might be ⅓ cup.
	Is the serving size weight given?		X		Determine serving size weight when making recipe during the verification phase.
	Are directions given for how to divide the product into individual servings?		X		Specify portioning directions; for this recipe, portioning directions might be to portion with a No. 12 scoop.
Recipe yield	Is the recipe yield indicated?		X		Determine recipe yield when making recipe during the verification phase.
Equipment	Is a pan size indicated?		X		Specify pan size; for this recipe, suggested pan size might be 12" x 20"x 2½".
	If preparation equipment is needed, is it indicated?			X	No preparation equipment is needed.
	Is the cooking equipment indicated?		X		Indicate whether to cook in a conventional or convection oven.
	Is the serving utensil listed?		X		Indicate the serving utensil; for this recipe, suggested serving utensil might be a No. 12 scoop.

Sample Recipe, Standardized

Recipe name: Broccoli, Rice, and Cheese Casserole
Recipe category: Vegetable
Serving size: ⅓ cup (3.7 oz.)

Ingredients	50 Servings	100 Servings
Rice, long-grained, cooked	2 lb 4 oz	4 lb 8 oz
Broccoli, cuts, frozen, steamed	5 lb	10 lb
Cream of Mushroom Soup, undiluted	½ 46-oz can	1 46-oz can
Milk, reconstituted skim	3 cups	6 cups
Cheese, American, grated	1 lb 10 oz	3 lb 4 oz
Onion, dehydrated, minced	¼ cup	½ cup
Salt	½ tsp	1 tsp
Bread crumbs	1½ cups	3 cups
Butter, melted	¼ cup	½ cup

Directions

1. Combine rice, broccoli, undiluted soup, milk, cheese, onion, and salt.
2. Spray vegetable pan spray on steam table pans (12"x 20"x 2½").
3. Spread 12 lb 4 oz of mixture into each pan.
4. Mix bread crumbs and melted butter.
5. Sprinkle 1¾ cups of bread cumb mixture over each steam table pan.
6. Bake at 350°F in convection oven for 1 hour until browned and bubbling to an internal temperature of at least 165°F for 15 seconds.
7. Use a No. 12 scoop/disher to portion.

APPENDIX B

Resource Tables

Weight and Volume Conversions

Teaspoons to Tablespoons

3 tsp	= 1 Tbsp
$1\frac{1}{2}$ tsp	= $\frac{1}{2}$ Tbsp
1 tsp	= $\frac{1}{3}$ Tbsp

Tablespoons to Cups

16 Tbsp	= 1 cup
12 Tbsp	= $\frac{3}{4}$ cup
$10\frac{2}{3}$ Tbsp	= $\frac{2}{3}$ cup
8 Tbsp	= $\frac{1}{2}$ cup
$5\frac{1}{3}$ Tbsp	= $\frac{1}{3}$ cup
4 Tbsp	= $\frac{1}{4}$ cup
2 Tbsp	= $\frac{1}{8}$ cup
1 Tbsp	= $\frac{1}{16}$ cup

Ounces to Pounds

16 oz	= 1 lb	(1.000 lb)
14 oz	= $\frac{7}{8}$ lb	(0.875 lb)
12 oz	= $\frac{3}{4}$ lb	(0.750 lb)
$10\frac{2}{3}$ oz	= $\frac{2}{3}$ lb	(0.667 lb)
10 oz	= $\frac{5}{8}$ lb	(0.625 lb)
8 oz	= $\frac{1}{2}$ lb	(0.500 lb)
6 oz	= $\frac{3}{8}$ lb	(0.375 lb)
$5\frac{1}{3}$ oz	= $\frac{1}{3}$ lb	(0.333 lb)
4 oz	= $\frac{1}{4}$ lb	(0.250 lb)
2 oz	= $\frac{1}{8}$ lb	(0.125 lb)
1 oz	= $\frac{1}{16}$ lb	(0.063 lb)

Cups to Quarts

4 cups	= 1 qt
3 cups	= $\frac{3}{4}$ qt
2 cups	= $\frac{1}{2}$ qt
1 cup	= $\frac{1}{4}$ qt

Quarts to Gallons

4 qt	= 1 gal
3 qt	= $\frac{3}{4}$ gal
2 qt	= $\frac{1}{2}$ gal
1 qt	= $\frac{1}{4}$ gal

Fluid Ounces to Volume Measure

$\frac{1}{2}$ fl oz	= 1 Tbsp
2 fl oz	= $\frac{1}{4}$ cup
2.65 fl oz	= $\frac{1}{3}$ cup
4 fl oz	= $\frac{1}{2}$ cup
5.36 oz	= $\frac{2}{3}$ cup
6 fl oz	= $\frac{3}{4}$ cup
8 fl oz	= 1 cup
16 fl oz	= 1 pt
32 fl oz	= 1 qt
64 fl oz	= 2 qt or $\frac{1}{2}$ gal
96 fl oz	= 3 qt or $\frac{3}{4}$ gal
128 fl oz	= 1 gal

Adapted from *USDA Quantity Recipes for School Foodservice, 1988*

Abbreviations Used in Standardized Recipes

Measurement	Abbreviation
teaspoon	tsp
tablespoon	Tbsp
cup	cup
quart	qt
gallon	gal
ounce	oz
pound	lb
fluid ounces	fl oz

Source: USDA, FNS, Child Nutrition Programs, Alexandria, VA

APPENDIX C

Recipe Evaluation Forms

Informal Evaluation Checklist

Questions	Yes	No	Action Needed
Is the visual appearance of the product acceptable?			
Is the flavor of the product one that students might enjoy?			
Are the ingredients in the recipe easily obtained?			
Is the cost per serving of the recipe within foodservice department guidelines?			
Is the labor time to make the product within foodservice department guidelines?			
Is the recipe acceptable enough to continue with formal evaluation?			
Is equipment available to prepare this item?			
Do employees possess the skills to prepare this item?			
Is the recipe within nutrition guidelines/goals?			

Decision Guidelines

1. If the answer is yes to all of the above questions, then proceed to formal evaluation of the recipe.

2. If the answer is no to one or two of the above questions, return to the recipe verification phase, make necessary corrections to the draft recipe, and do another informal evaluation.

3. If the answer is no to three or more of the above questions, strong consideration should be given to not continuing with standardization of this recipe.

Food Product Evaluation Form
(For Foodservice Staff, Students, and Teachers)

Recipe name:_____

Please rate the following traits of this product using the scale provided.

	Very Undesirable	Moderately Undesirable	Neither Desirable nor Undesirable	Moderately Desirable	Very Desirable
The **appearance** of the food	1	2	3	4	5
The **taste** of the food	1	2	3	4	5
The **temperature** of the food	1	2	3	4	5
The **texture** of the food (moistness, firmness)	1	2	3	4	5
The **overall acceptability** of the food	1	2	3	4	5
Total Score[a] _____	**Mean Score**[b] _____				

[a]Sum of ratings for five traits (appearance, taste, temperature, texture, overall acceptability)
[b]Total score divided by the number of traits rated

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

Food Product Evaluation Form
(For Elementary Students)

Recipe Name_____

Please read the following questions and circle your answer.
(For younger students, staff will need to read the questions to the student.)

1. Do you like the way this food looks?
a. Yes
b. No
c. Don't know

2. Do you like the taste?
a. Yes
b. No
c. Don't know

3. Would you eat this food item if it were served in your school cafeteria?
a. Yes
b. No
c. Don't know

Comments:

Product Evaluation Summary

	Evaluator #1	Evaluator #2	Evaluator #3	Evaluator #4	Evaluator #5	Mean Scores[a]
Traits						
Appearance	_____	_____	_____	_____	_____	_____
Taste	_____	_____	_____	_____	_____	_____
Temperature	_____	_____	_____	_____	_____	_____
Texture (moistness, firmness)	_____	_____	_____	_____	_____	_____
Overall acceptability	_____	_____	_____	_____	_____	_____
Scores						
Total score[b]	_____	_____	_____	_____	_____	_____
Mean score[c]	_____	_____	_____	_____	_____	_____

[a]Average of all evaluator ratings for a trait or an average of total scores or mean scores (sum of values in the row divided by number of evaluators)
[b]Sum of all trait ratings (appearance, taste, temperature, texture, overall acceptability) for an individual evaluator
[c]Average of trait ratings for an individual evaluator (total score divided by number of traits rated)

Completed Evaluation Form—Evaluator #1

Food Product Evaluation Form
(For Foodservice Staff, Students, and Teachers)

Recipe name: Vegetable Lasagna

Please rate the following traits of this product using the scale provided.

	Very Undesirable	Moderately Undesirable	Neither Desirable nor Undesirable	Moderately Desirable	Very Desirable
The **appearance** of the food	1	2	3	(4)	5
The **taste** of the food	1	2	3	4	(5)
The **temperature** of the food	1	2	3	4	(5)
The **texture** of the food (moistness, firmness)	1	2	(3)	4	5
The **overall acceptability** of the food	1	2	3	(4)	5
Total Score[a] **21**		**Mean Score**[b] **4.2**			

[a]Sum of ratings for five traits (appearance, taste, temperature, texture, overall acceptability)
[b]Total score divided by the number of trails rated

Comments:

Completed Evaluation Form—Evaluator #2

Food Product Evaluation Form
(For Foodservice Staff, Students, and Teachers)

Recipe name: Vegetable Lasagna

Please rate the following traits of this product using the scale provided.

	Very Undesirable	Moderately Undesirable	Neither Desirable nor Undesirable	Moderately Desirable	Very Desirable
The **appearance** of the food	1	2	3	4	(5)
The **taste** of the food	1	2	3	4	(5)
The **temperature** of the food	1	2	3	4	(5)
The **texture** of the food (moistness, firmness)	1	2	3	(4)	5
The **overall acceptability** of the food	1	2	3	4	(5)
Total Score[a] 24	**Mean Score**[b] 4.8				

[a]Sum of ratings for five traits (appearance, taste, temperature, texture, overall acceptability)
[b]Total score divided by the number of trails rated

Comments:

Completed Evaluation Form—Evaluator #3

Food Product Evaluation Form
(For Foodservice Staff, Students, and Teachers)

Recipe name: Vegetable Lasagna

Please rate the following traits of this product using the scale provided.

	Very Undesirable	Moderately Undesirable	Neither Desirable nor Undesirable	Moderately Desirable	Very Desirable
The **appearance** of the food	1	2	3	(4)	5
The **taste** of the food	1	2	3	(4)	5
The **temperature** of the food	1	2	3	(4)	5
The **texture** of the food (moistness, firmness)	1	2	(3)	4	5
The **overall acceptability** of the food	1	2	3	(4)	5
Total Score[a] **19**		**Mean Score**[b] **3.8**			

[a]Sum of ratings for five traits (appearance, taste, temperature, texture, overall acceptability)
[b]Total score divided by the number of trails rated

Comments:

Example of Completed Product Evaluation Summary for Vegetable Lasagna

	Evaluator #1	Evaluator #2	Evaluator #3	Evaluator #4	Evaluator #5	Mean Scores[a]
Traits						
Appearance	4	5	4			4.3
Taste	5	5	4			4.7
Temperature	5	5	4			4.7
Texture (moistness, firmness)	3	4	3			3.3
Overall acceptability	4	5	4			4.3
Scores						
Total score[b]	21	24	19			21
Mean score[c]	4.2	4.8	3.8			4.3

[a]Average of all evaluator ratings for a trait or an average of total scores or mean scores (sum of values in the row divided by number of evaluators)
[b]Sum of all trait ratings (appearance, taste, temperature, texture, overall acceptability) for an individual evaluator
[c]Average of trait ratings for an individual evaluator (total score divided by number of traits rated)

Appendix D

Information to Assist with Quantity Adjustment

Converting Fractions to Decimals

$\frac{1}{8}$	0.125
$\frac{1}{4}$	0.250
$\frac{1}{3}$	0.333
$\frac{3}{8}$	0.375
$\frac{1}{2}$	0.500
$\frac{5}{8}$	0.625
$\frac{2}{3}$	0.666
$\frac{3}{4}$	0.750
$\frac{7}{8}$	0.875

Rounding Rules

Weights

If the total amount of an ingredient is	Round it to
Less than 2 oz	Volume measure only unless weight is $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ oz amounts
2 to 10 oz	Nearest $\frac{1}{4}$ oz
10 oz to 2 lb 8 oz	Nearest $\frac{1}{2}$ oz
2 lb 8 oz to 5 lb	Nearest full oz
5 lb and more	Nearest 2 oz

Measures

If the total amount of an ingredient is	Round it to
Less than 2 Tbsp	Nearest $\frac{1}{4}$ tsp
2 Tbsp to $\frac{1}{2}$ cup	Nearest tsp
$\frac{1}{2}$ cup to $\frac{3}{4}$ cup	Nearest Tbsp (unless measure is $\frac{2}{3}$ cup)
$\frac{3}{4}$ cup to 2 cups	Nearest 2 Tbsp (unless measure is $1\frac{1}{3}$ or $1\frac{2}{3}$ cups)
2 cups to 2 qt	Nearest $\frac{1}{4}$ cup
2 qt to 4 qt	Nearest $\frac{1}{2}$ cup
1 gal to 2 gal	Nearest full cup
2 gal and more	Nearest full qt

Source: USDA, FNS, Child Nutrition Programs. Alexandria, VA.

Chart for Converting Ounces to Decimal Part of a Pound

Ounces	Decimal Part of lb	Ounces	Decimal Part of lb	Ounces	Decimal Part of lb
¼	0.016	6	0.375	12	0.750
⅓	0.021	6¼	0.391	12¼	0.766
½	0.031	6⅓	0.393	12⅓	0.771
⅔	0.042	6½	0.406	12½	0.781
¾	0.047	6⅔	0.417	12⅔	0.792
		6¾	0.422	12¾	0.797
1	0.063				
1¼	0.078	7	0.438	13	0.813
1⅓	0.083	7¼	0.453	13¼	0.828
1½	0.094	7⅓	0.456	13⅓	0.833
1⅔	0.104	7½	0.469	13½	0.844
1¾	0.109	7⅔	0.479	13⅔	0.854
		7¾	0.484	13¾	0.859
2	0.125				
2¼	0.141	8	0.500	14	0.875
2⅓	0.146	8¼	0.516	14¼	0.891
2½	0.156	8⅓	0.521	14⅓	0.896
2⅔	0.166	8½	0.531	14½	0.906
2¾	0.172	8⅔	0.542	14⅔	0.917
		8¾	0.547	14¾	0.922
3	0.188				
3¼	0.203	9	0.563	15	0.938
3⅓	0.208	9¼	0.578	15¼	0.953
3½	0.219	9⅓	0.583	15⅓	0.958
3⅔	0.229	9½	0.594	15½	0.969
3¾	0.234	9⅔	0.604	15⅔	0.979
		9¾	0.609	15¾	0.984
4	0.250				
4¼	0.266	10	0.625	16	1.000
4⅓	0.271	10¼	0.641		
4½	0.281	10⅓	0.644		
4⅔	0.292	10½	0.656		
4¾	0.297	10⅔	0.667		
		10¾	0.672		
5	0.313				
5¼	0.328	11	0.688		
5⅓	0.333	11¼	0.703		
5½	0.344	11⅓	0.708		
5⅔	0.354	11½	0.719		
5¾	0.359	11⅔	0.729		
		11¾	0.734		

MEASURING SUCCESS WITH STANDARDIZED RECIPES

INSTALLATION INSTRUCTIONS

1. Insert the CD-ROM in the CD drive. Double click on the "My Computer" icon to locate your CD-ROM drive. Double click on the CD-ROM drive to open the CD and view the contents.

2. Print the "README" file. It contains important information about using the "Measuring Success With Standardized Recipes" program.

3. Decide if you want to install the program on your local hard drive or run it directly from the CD-ROM.

   Advantages: Installing and running from your local hard drive option
   - Ability to save and retrieve recipes from the recipe adjuster section
   - Program may run faster

   Advantage: Running directly from the CD-ROM option
   - Requires very little disk space on your computer

4. Installing and running from your local hard drive
   Double click on the icon in the CD-ROM labeled "Install." The Installation Wizard will run automatically. (If the Installation Wizard prompts you to run the program as administrator, ignore it by clicking "OK".) Follow the on-screen instructions by clicking "next" until "finish" to complete the installation. During installation, a shortcut to the program labeled "Measuring Success With Standardized Recipes" will be placed on your desktop and will also be added to your Programs group in the Start Menu. Use the shortcuts to launch the lesson after initial setup.

Measuring Success With Standardized Recipes.lnk

5. Running directly from the CD-ROM
   Double click on the icon on the CD-ROM labeled "Run CD" to automatically start the program without installing it on your local hard drive.

TO CHANGE OR REMOVE THE INSTALLATION

Insert the CD-ROM again. Double click on the "My Computer" icon to locate your CD-ROM drive. Double click on the CD-ROM drive to open the CD and view the contents. Double click on the icon labeled "Install." (If the Installation Wizard prompts you to run the program as administrator, ignore it by clicking "OK".) It will give three options: modify, repair or remove. Choose "remove." Follow the on-screen instructions by clicking "next" until "finish." This will uninstall the program automatically.

MINIMUM SYSTEM REQUIREMENTS

486/66 or higher processor, including Intel Pentium processor
Windows® 95, 98, NT 4.0 or 2000 required.
(Not Mac compatible, but will run under Connectix™ Virtual PC)
8 MB RAM required (16 MB or more recommended)
800 X 600 pixels screen resolution recommended
16 Bit or higher display
4 x or higher CD-ROM drive
16 MB or more RAM (32 MB + recommended)
22 MB hard drive space free for program

- Adobe® Acrobat® or Adobe® Acrobat® Reader® 20 MB hard drive space free for Acrobat® Reader® if not already installed (If an earlier version of Adobe® Acrobat® Reader® is loaded onto your computer that works with the program, do not install the version included with this program as it takes up more drive space and uses more RAM. The Acrobat® Reader's® 5.0.5 installer is included on this CD-ROM in the "Acrobat Reader" folder in compliance with Adobe® Acrobat® Reader's® Distribution Agreement.)
- Microsoft® ODBC Components (Open Database Connectivity Components)
- Rich Text Format (RTF) compatible word processing software (Microsoft® Office® is recommended for ODBC compliance and RTF Compatibility. Other software packages may be RTF compatible, but are not guaranteed.
- If the ingredient or meal category dropdown lists are blank when working in the Recipe Adjuster, this means the program is not linking to the database file that holds data for these lists. This may signify that the computer system running the program does not have the proper Microsoft® ODBC components. If this occurs, please read the "ODBC Read.txt" file located on the "Measuring Success" CD-ROM.)