

# Recipe Adjustment – Factor Method

The recipes in this package are standardized to yield both 25 and 50 servings. For example, if you look at the recipe for Chicken or Turkey Salad (E-07), you will see directions to make either 25 servings (½ cup each) or 50 servings (¼ cup each).

Since few child care centers serve exactly 25 or 50 servings, you may need to increase or decrease the quantities of ingredients to produce the number of servings you need. To help you do this, formulated steps and two



worksheets are given on the following pages that will show you how to:

1. Calculate the quantities of food needed in a recipe, and

2. Use the Marketing Guide (listed in some recipes in this package) to calculate the quantities of food needed to purchase for specific ingredients.

## Chicken or Turkey Salad

Meat		Salads and Salad Dressings				E-07
Ingredients	25 Servings		50 Servings		Directions	
	Weight	Measure	Weight	Measure		
*Cooked chicken or turkey, chopped	3 lb 3 oz	2 qt 2 cups	6 lb 6 oz	1 gal 1 qt	1. Combine chicken or turkey, celery, onions, pickle relish, pepper, and dry mustard. Add salad dressing or mayonnaise. Mix lightly until well blended. Spread 2 lb 12 ¼ oz (approximately 1 qt 2 ¼ cups) into each pan (9" x 13" x 2"). For 25 servings, use 2 pans. For 50 servings, use 4 pans.  2. CCP: Cool to 70° F within 2 hours and from 70° F to 41° F or lower within an additional 4 hours.  Cover. Refrigerate until service.  3. Mix lightly before serving.  Portion with No. 8 scoop (½ cup).	
*Fresh celery, chopped	11 oz	2 ½ cups 2 Tbsp	1 lb 6 oz	1 qt 1 ¼ cups		
*Fresh onions, chopped OR Dehydrated onions	6 oz	1 cup OR 3 Tbsp	12 oz OR 2 ¼ oz	2 cups OR ½ cup		
Sweet pickle relish, undrained	7 ½ oz	¾ cup 2 Tbsp	15 oz	1 ¾ cups		
Ground black or white pepper		1 tsp		2 tsp		
Dry mustard		2 ¼ tsp		1 Tbsp 1 ½ tsp		
Reduced calorie salad dressing OR Lowfat mayonnaise	13 oz OR 13 oz	1 ½ cups 2 Tbsp OR 1 ½ cups 2 Tbsp	1 lb 10 oz OR 1 lb 10 oz	3 ¾ cups OR 3 ¾ cups		

\* See Marketing Guide

Marketing Guide for Selected Items		
Food as Purchased for	25 Servings	50 Servings
Chicken, whole, without neck and giblets OR	8 lb 14 oz OR	17 lb 12 oz OR
Turkey, whole, without neck and giblets	6 lb 13 oz	13 lb 10 oz
Celery	14 oz	1 lb 12 oz

# Recipe Adjustment – Factor Method

continued

## How To Calculate the Quantities of Food Needed in a Recipe:

Each ingredient of the original recipe will need to be converted to provide the weight or volume of food to use in the adjusted recipe. Ingredient conversions can be calculated using two easy steps.

### Step 1. Determine the “multiplying factor”

To calculate the multiplying factor, you will divide the number of servings you want by the number of servings in the original recipe.

$$\frac{\text{number of servings you want}}{\text{original number of servings}} = \text{multiplying factor}$$

### Step 2: Determine the new weight or volume

To obtain the amount of each ingredient needed to prepare the adjusted number of servings, you will multiply the original amount of each ingredient of the recipe you are converting (weight or volume measure) by the multiplying factor.

$$\frac{\text{original quantity (calculate each ingredient separately)}}{\text{multiplying factor}} = \text{adjusted amount}$$

## Example: Chicken or Turkey Salad

Pages 19 to 26 provide several examples using the factor method for recipe adjustment.

### Step 1: Determining the Multiplying Factor (One Example)

Using the recipe for Chicken or Turkey Salad (E-07), we are going to determine the multiplying factor. Our original recipe provides 25 servings, and we want 60 servings.

Make the following calculation:

$$\frac{60}{\text{number of servings you want}} \div \frac{25}{\text{original number of servings}} = \frac{2.4}{\text{multiplying factor}}$$

**Do not round the multiplying factor.** The multiplying factor will be used to adjust the weights and volumes of each ingredient in the recipe.

# Recipe Adjustment – Factor Method

continued

## Examples continued

### Step 2: Determine the New Amount – By Weight (Two Examples)

Using the recipe for Chicken or Turkey Salad (E-07), we are going to convert the amount of two ingredients by weight. Our original recipe provides 25 servings and we want 60 servings.

#### Example 1, By Weight – Fresh Celery, Chopped

The recipe specifies 11 ounces of fresh, chopped celery for 25 servings. The multiplying factor obtained on page 19 to provide 60 servings is 2.4.

Make the following calculation:

$$\frac{11 \text{ ounces}}{\text{original quantity}} \quad \times \quad \frac{2.4}{\text{multiplying factor}} \quad = \quad \frac{26.4 \text{ ounces}}{\text{adjusted amount}}$$

Change 26.4 ounces into the equivalent weight in pounds and ounces

Using the “Common Weights (Ounces to Pounds)” table on page 35, you can determine that 26.4 ounces is 1 lb 10.4 ounces.

$$26.4 \text{ oz} - 16 \text{ oz (1 lb)} = 10.4 \text{ oz}$$

$$\text{therefore, } 26.4 \text{ oz} = 1 \text{ lb } 10.4 \text{ oz}$$

**It is best not to round the new values. Minimal rounding is acceptable as long as the value is rounded up.**

If your scale cannot weigh to the accuracy of 0.4 ounces, round up to the next nearest measurable amount. In this example, the decimal 0.4 was increased to one half ounce.

The adjusted recipe for 60 servings of Chicken or Turkey Salad (E-07) will need 1 lb 10 ½ oz of fresh, chopped celery.

## Recipe Adjustment – Factor Method

continued

### Example 2, By Weight – Cooked Chicken or Turkey

The recipe specifies 3 lb 3 oz of cooked chicken or turkey for 25 servings. The multiplying factor obtained on page 19 to provide 60 servings is 2.4.

Change the original weight into one unit of measure:

In this example, the original weight of the cooked chicken or turkey has two units of measure: pounds and ounces. Before you can convert the amount needed for the adjusted recipe, you need to change the weight into one unit of measure only. As long as you convert the weight to either all ounces or all pounds, it does not matter which unit you choose. As you can see below, we chose to convert the weight to all ounces for this example.

$$\begin{array}{r} 3 \text{ lb} \times 16 \text{ oz/lb} = 48 \text{ oz} \\ (+) \qquad \qquad \qquad 3 \text{ oz} \\ \hline 3 \text{ lb } 3 \text{ oz} \qquad = 51 \text{ oz} \end{array}$$

Make the following calculation:

$$\frac{51 \text{ oz}}{\text{original quantity}} \quad \times \quad \frac{2.4}{\text{multiplying factor}} \quad = \quad \frac{122.4 \text{ oz}}{\text{adjusted amount}}$$

Change 122.4 ounces into the equivalent weight expressed in pounds and ounces:

Using the “Common Weights (Ounces to Pounds)” table on page 35, you can determine that 122.4 ounces is 7 lb 10.4 ounces.

$$\frac{122.4 \text{ oz}}{16 \text{ oz/lb}} = 7.65 \text{ lb}$$

Change 7.65 pounds to pounds and ounces:

- 1) First determine how many ounces 0.65 pound is by multiplying it by 16 ounces per pound.

$$0.65 \times 16 \text{ oz/lb} = 10.4 \text{ oz}$$

- 2) If your scale cannot weigh to the accuracy of 0.4 ounces, round up to the next nearest measurable amount.

In this example, the decimal 0.4 was increased to one half ounce (0.5 oz).

- 3) Combine the pounds and ounces.

$$7 \text{ lb } 10.5 \text{ oz}$$

**It is best not to round the new values. Minimal rounding is acceptable as long as the value is rounded up.**

The adjusted recipe for 60 servings of Chicken or Turkey Salad (E-07) will need 7 lb 10 ½ oz of cooked chicken or turkey.

# Recipe Adjustment – Factor Method

continued

## Step 2: Determine the New Amount – By Volume (Two Examples)

Using the recipe for Chicken or Turkey Salad (E-07), we are going to convert the amount of two ingredients by volume. Our original recipe provides 25 servings, and we want 60 servings.

### Example 1, By Volume – Reduced-Calorie Salad Dressing

The recipe specifies 1 ½ cups 2 Tbsp of reduced-calorie salad dressing for 25 servings. The multiplying factor obtained on page 19 to provide 60 servings is 2.4.

Change the original volume into one unit of measure:

In this example, the original volume has two units of measure: cups and tablespoons. Before you can convert the amount needed for the adjusted recipe, you need to change the volume into one unit of measure only. As long as you convert the volume into only one unit of measure, it does not matter which unit you choose. As you can see below, we chose to convert the volume to all cups for this example.

$$\begin{array}{r} 2 \text{ Tbsp} \div 16 \text{ Tbsp/cup} = 0.125 \text{ cups} \\ (+) \qquad \qquad \qquad 1.5 \text{ cups} \\ \hline 1 \frac{1}{2} \text{ cups} + 2 \text{ Tbsp} = 1.625 \text{ cups} \end{array}$$

Make the following calculation:

$$\begin{array}{r} 1.625 \text{ cups} \\ \hline \text{original quantity} \end{array} \quad \times \quad \begin{array}{r} 2.4 \\ \hline \text{multiplying factor} \end{array} \quad = \quad \begin{array}{r} 3.90 \text{ cups} \\ \hline \text{adjusted amount} \end{array}$$

Change 3.90 cups into a more measurable volume:

3.90 cups is not an amount that can be easily measured. Using the “Fractions to Decimal Equivalents” table on page 35, you can see that 0.9 is greater than 0.875, and should be increased to the next whole number. Increase 3.90 cups to the next higher measurable amount, 4.0 cups (1 qt).

**It is best not to round the new values. Minimal rounding is acceptable as long as the value is rounded up.**

The adjusted recipe for 60 servings of Chicken or Turkey Salad (E-07) will need 1 quart of reduced-calorie salad dressing.

## Recipe Adjustment – Factor Method

continued

### Example 2, By Volume – Dry Mustard

The recipe specifies 2  $\frac{1}{4}$  teaspoons of dry mustard for 25 servings. The multiplying factor obtained on page 19 to provide 60 servings is 2.4.

Change the fraction to the decimal equivalent (see “Fractions to Decimal Equivalents” table on page 35):

$$\frac{2 \frac{1}{4} \text{ tsp}}{\text{(amount for 25 servings)}} = \frac{2.25 \text{ tsp}}{\text{(decimal equivalent)}}$$

Make the following calculation:

$$\frac{2.25 \text{ tsp}}{\text{original quantity}} \times \frac{2.4}{\text{multiplying factor}} = \frac{5.4 \text{ tsp}}{\text{adjusted amount}}$$

Change 5.4 tsp into a more appropriate unit:

5.4 teaspoons is not an amount that can be easily measured. Using the “Volume Measures of Equivalency” table on page 36, you can see that tablespoons is a more appropriate measure.

$$5.4 \text{ tsp} \div 3 \text{ tsp/Tbsp} = 1.8 \text{ Tbsp}$$

Change 1.8 Tbsp into a more measurable volume:

1.8 tablespoons is not an amount that can be easily measured. Increase 1.8 Tbsp to 2 Tbsp.

**It is best not to round the new values. Minimal rounding is acceptable as long as the value is rounded up.**

The adjusted recipe for 60 servings of Chicken or Turkey Salad (E-07) will need 2 Tbsp of dry mustard.

For more information on ways to modify recipes, see *USDA Recipes for Schools*. This publication can be viewed or downloaded at [teamnutrition.usda.gov/Resources/usda\\_recipes.html](http://teamnutrition.usda.gov/Resources/usda_recipes.html).

# Recipe Adjustment – Factor Method

continued

## Using the Marketing Guide to Calculate the Quantities of Food Needed to Purchase:

Some recipes call for food items that need preparation after purchasing and before being used in a recipe. For example, a recipe might call for 2 cups of peeled, sliced apples. Since it is uncommon to buy peeled, sliced, fresh apples you need to start with whole, fresh apples. The Marketing Guide tells you what quantity of whole, fresh apples to purchase in order to obtain 2 cups of peeled, sliced apples needed for the recipe.

Not all recipes have a Marketing Guide.

Only the recipes that use ingredients in a form different from the as purchased (AP) form will have Marketing Guide information.

**If you are adjusting a recipe to obtain fewer or more than 25 or 50 servings, you will also need the adjusted quantities listed in the Marketing Guide.**

Using the recipe for Chicken or Turkey Salad (E-07), we are going to convert the amount of celery listed in the Marketing Guide. Our original recipe provides 25 servings, and we want 60 servings.

The Marketing Guide specifies 14 oz of celery (AP) for 25 servings. When calculating the adjustments for the Marketing Guide amounts, use the same multiplying factor that you used to calculate the amounts needed for the recipe. The multiplying factor obtained on page 19 to provide 60 servings is 2.4.

Make the following calculation:

$$\frac{14 \text{ oz celery (AP)}}{\text{original quantity}} \quad \times \quad \frac{2.4}{\text{multiplying factor}} \quad = \quad \frac{33.6 \text{ oz}}{\text{adjusted amount}}$$

Change 33.6 ounces into the equivalent weight expressed in pounds.

$$\frac{33.6 \text{ oz}}{16 \text{ oz/lb}} = 2.1 \text{ lb}$$

## Recipe Adjustment – Factor Method continued

Change 2.1 pounds into a more acceptable measure:

Using the “Fractions to Decimal Equivalentents” table on page 35, you can see that .1 should be increased to the next decimal of 0.125 ( $\frac{1}{8}$ ). Increase 2.1 lb to 2.125 lb. Then using the “Common Weights, (Ounces to Pounds)” table on page 35, we determine that  $\frac{1}{8}$  lb is equivalent to 2 oz.

So, you will need to buy 2 lb 2 oz of whole celery (AP) in order to have enough chopped celery for the Chicken or Turkey Salad (E-07) recipe to provide 60 servings.

*The Marketing Guide will indicate the amount needed if good quality food is purchased and prepared by methods that result in a minimum of waste. More food may be needed to obtain the amount specified in the recipe if lower quality food is used and preparation losses are above average.*

### Notes:

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# Recipe Adjustment – Factor Method

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## Completed Worksheet for Adjusting the Chicken or Turkey Salad (E-07) Recipe From 25 to 60 Servings:

This worksheet includes the examples shown on pages 19 to 25.

### Recipe Conversion Worksheet

<b>Recipe Title: Chicken or Turkey Salad (E-07)</b>	<b>Multiplying Factor</b>	<b>2.4</b>
<b>Original Number of Servings (Old Yield) <u>25</u></b>	<b>Number of Servings You Want</b>	<b><u>60</u></b>

Recipe Ingredient	Old Quantity From Recipe	Old Quantity (in One Unit of Measure)	Times	Multiplying Factor	Equals	Adjusted Amount	New Quantity (To Use in Recipe)
Cooked chicken or turkey, chopped	3 lb 3 oz	51 oz	X	2.4	=	122.4 oz	7 lb 10 ½ oz
Fresh celery, chopped	11 oz	11 oz	X	2.4	=	26.4 oz	1 lb 10 ½ oz
Fresh onions, chopped	6 oz	6 oz	X	2.4	=	14.4 oz	14 ½ oz
Sweet pickle relish, undrained	7 ½ oz	7.5 oz	X	2.4	=	18 oz	1 lb 2 oz
Ground pepper	1 tsp	1 tsp	X	2.4	=	2.4 tsp	2 ½ tsp
Dry mustard	2 ¼ tsp	2.25 tsp	X	2.4	=	5.4 tsp	2 Tbsp
Reduced-calorie salad dressing	1 ½ cups 2 Tbsp	1.625 cups	X	2.4	=	3.9 cups	4 cups (1 quart)

### Marketing Guide Conversion Worksheet

Ingredient As Purchased (AP)	Old Quantity From Marketing Guide	Old Quantity (in One Unit of Measure)	Times	Multiplying Factor	Equals	Adjusted Amount	New Quantity To Purchase
Chicken, whole, without neck and giblets	8 lb 14 oz	8.875 lb	X	2.4	=	21.3 lb	21 lb 5 oz
OR	OR	OR	OR	OR	OR	OR	OR
Turkey, whole, without neck and giblets	6 lb 13 oz	6.8125 lb	X	2.4	=	16.35 lb	16 lb 6 oz
Celery, chopped	14 oz	14 oz	X	2.4	=	33.6	2 lb 2 oz

# Recipe Adjustment – Factor Method

continued

## Recipe Conversion Worksheet

Recipe Title: \_\_\_\_\_  
 Original Number of Servings (Old Yield) \_\_\_\_\_

Multiplying Factor \_\_\_\_\_  
 Number of Servings You Want \_\_\_\_\_

Recipe Ingredient	Old Quantity From Recipe	Old Quantity (in One Unit of Measure)	Times	Multiplying Factor	Equals	Adjusted Amount	New Quantity (To Use in Recipe)
			X		=		
			X		=		
			X		=		
			X		=		
			X		=		
			X		=		
			X		=		

## Marketing Guide Conversion Worksheet

Ingredient As Purchased (AP)	Old Quantity From Marketing Guide	Old Quantity (in One Unit of Measure)	Times	Multiplying Factor	Equals	Adjusted Amount	New Quantity To Purchase
			X		=		
			X		=		
			X		=		

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## Recipe Adjustment – Factor Method

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### **Nonstandardized Recipes:**

As we have already seen, the total yield of each of the recipes has been calculated and is indicated on the recipe. However, there may be times when you want to use this same method to adjust the yield of a nonstandardized recipe. In these instances, you may need to do some extra calculations.

For example, in working with nonstandardized recipes, it is a good idea to confirm the total yield of the recipe by adding together the quantities of all ingredients used.

In addition, you may need to convert all of the quantities to ounces before you can calculate the total yield. For your convenience, this manual includes a chart with basic units of measure and their equivalencies on page 36.

