



# No Time To Train

## Short Lessons for School Nutrition Assistants

### Combine Multiple Servings – by Volume

#### Lesson Overview

**Lesson Participants:** School Nutrition Assistants/Technicians

**Type of Lesson:** Short face-to-face training session

**Time Needed to Conduct the Lesson:** 25 minutes

**Lesson Description:** This lesson explains the steps for combining two or more volume measured serving sizes for the purpose of determining the amount of food to purchase and prepare. An instructor-led activity is used to guide participants through an exercise combine multiple servings. The lesson is designed for managers to teach school nutrition assistants/technicians.

#### Lesson Objectives:

At the end of this lesson, the participant will be able to:

1. Combine serving sizes to determine the amount of food to purchase and prepare.
2. Calculate multiple serving sizes by volume for grade groups.

#### Get Ready to Train

**Note:** This lesson is one of three lessons on combining multiple servings.

The format for the **No Time to Train** lessons includes an overview, preparation checklist, lesson at a glance with timeline for conducting the lesson, references, and an instructor's script. The manager/instructor will use the script to present the lesson to the participants. The script gives directions to the manager/instructor—**DO, SAY, ASK, LISTEN, AND ACTIVITY**—to deliver the lesson.

No special audiovisual or electronic equipment is needed to conduct the lesson. The lesson can be presented in the cafeteria, media center, or classroom.

## Preparation Checklist

**Directions:** Use the Preparation Checklist to prepare for the training session. Track your progress by checking off tasks as they are completed.

Done <input checked="" type="checkbox"/>	Lesson Tasks
	<p><b>Gather Materials</b></p> <p>Materials Needed:</p>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Instructor’s Script</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Black or white board; overhead or flip chart; chalk or markers</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Handout 1: Sample Food Production Record</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Handout 2: Combine Multiple Servings—by Volume</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Handout 3: Combine Multiple Servings—by Volume with Key Answers</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Pencils and calculators (one for each participant)</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Session Evaluation form (one for each participant)</li> </ul>
	<p><b>Prepare for Lesson</b></p> <p>Before the Training:</p>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Make copies of Handouts 1, 2 and 3 (one for each participant).</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Make copies of Session Evaluation form (one for each participant).</li> </ul>
	<p>On Training Day:</p>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Reproduce Handout 2: Combine Multiple Servings-by Volume on the black or white board or flip chart for demonstration purposes.</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Place pencils and calculators on tables (one for each participant).</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Distribute Handouts 1 and 2 to each participant.</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Distribute Handout 3 after activity (one for each participant).</li> </ul>
	<p>On the Instructor’s Table:</p>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Instructor’s Script</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Handout 1: Sample Food Production Record</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Handout 2: Combine Multiple Servings—by Volume</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Handout 3: Combine Multiple Servings—by Volume with Key Answers</li> </ul>
<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Session Evaluation forms</li> </ul>

**Lesson at a Glance**  
(25 minutes)

Time	Topic	Task	Materials
6 minutes	Introduction and Overview	Instructor introduces the topic.	Instructor's Script
15 minutes	Objective 1: Combine serving sizes to determine the amount of food to purchase and prepare.	Distribute Handout 1. Instructor guides participants through a Sample Food Production Record.	Handout 1: Sample Food Production Record
	Objective 2: Calculate multiple serving sizes by volume for grade groups.	Distribute Handout 2. Use Handout 1 to complete exercise. Participants will calculate and fill in provided blanks on Handout 2.	Handout 2: Combine Multiple Servings—by Volume
		Distribute Handout 3. Instructor leads a discussion on the exercise completed.	Handout 3: Combine Multiple Servings—by Volume with Key Answers
2 minutes	Wrap up and Review	Volunteers summarize the lesson by answering questions.	
2 minutes	Session Evaluation	Conduct a short evaluation of the lesson.	Session Evaluation form

**Note to Instructor:** The *Food Buying Guide for Child Nutrition Programs* is a “must” reference to determine the contribution foods make toward the meal pattern requirements. The resource helps foodservice personnel to purchase the right amount of food and serve reimbursable meals (food-based menu planning).

**References:**

National Food Service Management Institute, & U. S. Department of Agriculture, Food and Nutrition Service. (2005). *Food buying guide for child nutrition program instructor manual*. University, MS: Author.

U. S. Department of Agriculture, Food Nutrition Service. (2007 January). *The road to SMI success—a guide for school foodservice directors*. Retrieved September, 24, 2008, from <http://www.fns.usda.gov/tn/Resources/roadtosuccess.html>

U. S. Department of Agriculture, Food and Nutrition Service. (2008). *A menu planner for healthy school meals...to help you plan, prepare, serve, and market appealing meals*. Retrieved September 24, 2008, from [http://www.fns.usde.gov/tn/Resources/menuplanner\\_chapter7.pdf](http://www.fns.usde.gov/tn/Resources/menuplanner_chapter7.pdf)

U. S. Department of Agriculture, Food and Nutrition Service. (2008). *Food buying guide for child nutrition programs*. Washington, DC. Retrieved September 18, 2008, from <http://www.fns.usda.gov/tn/Resources/foodbuyingguide.html>

## Instructor's Script



### SAY:

Today we will talk about and practice combining multiple servings when the food is portioned by volume. It is important to know how to combine multiple servings so we can accurately determine the amount of food to purchase and prepare.

The example we will use is steamed broccoli. All serving sizes must be combined into one common serving size prior to determining the total amount of frozen broccoli needed in purchase units (pounds or cases).



### ASK:

Why is broccoli volume measured when portioned?



### LISTEN:

Listen to responses.

Suggested answer: Broccoli contributes to the vegetable/fruit component of the meal pattern; therefore, it is portioned by volume measure.



### ASK:

When multiple serving sizes are used, why is it necessary to combine the servings prior to determining the amount of food to purchase and prepare?



### LISTEN:

Listen to responses.

Suggested answer: It is necessary to combine the servings into one common unit prior to determining the amount to purchase or prepare because we do not buy separate pounds or purchase units of broccoli for each portion size. We add all of the needed servings and purchase the required number of pounds or cases to serve everyone.



### ACTIVITY:

Using **Handout 1: Sample Food Production Record**, instructor and participants will complete an exercise on **Handout 2: Combine Multiple Servings—by Volume**.



### DO:

Distribute **Handout 1: Sample Food Production Record** and **Handout 2: Combine Multiple Servings—by Volume**. Use the overhead, black/white board, or flip chart with **Handout 2** reproduced on it to guide participants through the steps.



### SAY:

The Child Nutrition Program set the requirements for the divisions of age/grade groups and the serving size of the meal items. The serving sizes reflect age appropriate nutrients and calories.

Let's look at the handouts. The first is **Handout 1: Sample Food Production Record**. The other is **Handout 2: Combine Multiple Servings—by Volume**.

The sample food production record directs which foods to prepare and provides forecasted numbers of servings needed with serving sizes by grade groups. The information needed to project the amount of food to prepare using the *Food Buying Guide for Child Nutrition Programs* or the product label is included, too.

The menu planner or manager has recorded the necessary information on the **sample food production record**. The school nutrition assistant is responsible for preparing the broccoli and calculating the number of cases of broccoli needed to serve this meal.

Let's use **Handout 2**, an exercise that will help us combine serving sizes. We need to determine the total number of pounds of broccoli required and divide by the case weight to determine how many cases of frozen broccoli are needed. Broccoli is purchased in 20 lb cases.



**DO:**

Use the overhead, black/white board, or flip chart with **Handout 2** reproduced on it to guide participants through the steps.



**ASK:**

In **Handout 1**, what are the divisions in **Grade Groups** for portion sizes of broccoli?



**LISTEN:**

Listen to responses.

Answers: The Grade Groups are K-3, 4-8, 9-12, and adult, respectively.



**SAY:**

Write the **Grade Groups** into the first blank column of the exercise on **Handout 2**.



**DO:**

While participants are completing their exercise, write the **Grade Groups** on the demonstration exercise.



**ASK:**

Looking at **Handout 1**, how many **Projected Student Servings** and **Projected Adult and À la Carte Servings** are needed for the grade groups, adult, and à la carte servings? And, what two rows need to be added together?



**LISTEN:**

Listen to responses.

Answers: The **Projected Total Servings Needed** are 297, 315, and 298 servings, respectively.

**SAY:**

Use **Handout 2** to write the **Projected Total Servings Needed** into the second blank column of the exercise.

**DO:**

While participants are completing their exercise, write the **Projected Total Servings Needed** on the demonstration exercise.

**ASK:**

What serving size is needed for Grade Groups K-3, 4-8, 9-12, and adults?

**LISTEN:**

Listen to responses.

Answers: 1/4 or 0.25 cup, 3/8 or 0.385 cup, and 1/2 or 0.50 cup, respectively

**NOTE:** If participants need help in converting fractions to decimals, they may refer to Table 6, page I-37 of the *Food Buying Guide for Child Nutrition Programs*.

Table 6		
Decimal Equivalents of Commonly Used Fractions		
1/8 = 0.125	1/3 = 0.333	2/3 = 0.666
1/4 = 0.250	1/2 = 0.500	3/4 = 0.750
3/8 = 0.375	5/8 = 0.625	7/8 = 0.875

**SAY:**

Write these serving sizes on the **Serving Size Needed** column of the exercise.

**DO:**

While participants are completing their exercise, write the serving sizes on the demonstration exercise.

**SAY:**

The next thing to do is to multiply each line as directed on the exercise.

**DO:**

Multiply each line as directed on the exercise:

Grade Groups	Projected Total Servings Needed	x	Serving Size Needed	=	Total Servings Needed
K-3	297	x	1/4 or 0.25 cups	=	74.3 cups
4-8	185	x	3/8 or 0.385 cups	=	121.3 cups
9-12 and Adult	203	x	1/2 or 0.50 cups	=	149.0 cups
					345 cups of broccoli (always round up when determining how much food to purchase or prepare)

**SAY:**

It is now time to use the Food Buying Guide for determining how much broccoli to buy.

**DO:**In **Handout 2**, illustrate steps 1-6 on the demonstration sheet as you read the text below.**SAY:****Step 1:** The 345 cups of broccoli we need must be converted to servings as represented in the Food Buying Guide.**NOTE:** Refer to the excerpt *Food Buying Guide for Child Nutrition Programs* Section 2, page 2-26, Broccoli, frozen cut or chopped.

You will find that the Column 4 serving size for broccoli is 1/4 or 0.25 cup. Directions for doing this are on the exercise.

345	÷	0.25 cup	=	1,380
Total Number of Cups	÷	FBG Column 4 Serving Size		Total 1/4-cup Servings Needed

**Step 2:** We move the 1,380 1/4-cup servings to the table below the chart **Method 1 for Calculating the Amount of Food to Purchase** under **Column A**. Follow the arrow.**Step 3:** Fill in the yield information from the excerpt from the *Food Buying Guide for Child Nutrition Programs* Section 2, page 2-26, broccoli, frozen cut or chopped. See column 3 (9.60) and 4 (1/4 cup cooked, drained vegetable). Then, write the information into the table **Method 1 for Calculating the Amount of Food to Purchase** under **Column B**.

- 9.60, 1/4-cup servings per lb of frozen broccoli, cut or chopped

**Step 4:** On the table **Method 1 for Calculating the Amount of Food to Purchase** in **Column C**, divide, A by B, which then equals C ( $A \div B = C$ ).

- $1380 \div 9.6 = 143.75$  lb of frozen broccoli cut or chopped

**Step 5:** Round up your answer in **Column D**.

- 143.75 rounded up = 144 lb of frozen broccoli, cut or chopped

**Step 6:** Divide by the case weight to determine the number of cases needed.

- $144 \text{ lb} \div 20 \text{ lb per case} = 7.2$  rounded up to 7.25 cases of frozen broccoli, cut and chopped.



**ASK:**

Do you have any questions about the exercise?



**SAY:**

Let's be sure you have the correct answers on **Handout 2**. Use **Handout 3** to verify your answers are correct.



**DO:**

Distribute **Handout 3: Combine Multiple Servings—by Volume with Key Answers**.



**SAY:**

This lesson explains the steps for combining two or more volume measured serving sizes for the purpose of determining the amount of food to purchase and prepare. Through the exercise, we have learned to calculate serving sizes by volume for grade groups and the total servings needed of the product in cases to purchase and prepare.



**ASK:**

Do you have any questions about the exercise on combining multiple serving sizes?



**LISTEN:**

Listen to individual responses. Answer questions to the best of your ability. If there are questions you can't answer, tell participants you will find out the answer and let them know later. If you need assistance in finding answers, please call the National Food Service Management Institute at 800-321-3054.



**DO:**

Distribute the Session Evaluation form.



**SAY:**

Thank you for participating in the lesson today. Please take a few minutes to complete the Session Evaluation form. Thank you for your input.

## Handout 1: Sample Food Production Record

Menu Item Used	Recipe # or Product Code	Grade Groups	Serving Size Needed (Wt/Vol/Ct)	Projected Student Servings	Projected Adult and A La Carte Servings	Projected Total Servings Needed	Amount Needed per 100 servings from FBG Yield Data Table Column 5	Total Amount of Food Prepared in Purchase Units Column 8 x Column 9
Steamed Broccoli	Burt's Broccoli 36678	K-3	1/4 cup	297	0	297	See Food Buying Guide & Product Label	
		4-8	3/8 cup	315	0	315		
		9-12 and Adult	1/2 cup	278	20	298		



## Handout 2: Combine Multiple Servings—by Volume

Serving Size Conversion for Multiple Servings					
Grade Groups	Projected Total Servings Needed	x	Serving Size Needed	=	Total Needed
		x		=	
		x		=	
		x		=	

  

<p><b>When the serving sizes are in ounces,</b> the total number of servings needed has been converted and this number used in Column A of Method 1 or 2.</p> <p><b>When the serving sizes are in fractions of a cup,</b> one additional step is needed. Divide the total number of cups by the serving size from Column 4 of the <i>Food Buying Guide</i> to get the total number of servings needed. This number is used in Column A of Method 1 or 2.</p>	<p><b>Additional Step for Cups:</b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 20%;"></td> <td style="width: 5%; text-align: center;">÷</td> <td style="width: 20%;"></td> <td style="width: 5%; text-align: center;">=</td> <td style="width: 50%;"></td> </tr> <tr> <td>Total Number of Cups</td> <td style="text-align: center;">÷</td> <td>FBG Column 4 Serving Size</td> <td></td> <td>Total Servings</td> </tr> </table>		÷		=		Total Number of Cups	÷	FBG Column 4 Serving Size		Total Servings
	÷		=								
Total Number of Cups	÷	FBG Column 4 Serving Size		Total Servings							

Method 1 for Calculating the Amount of Food to Purchase			
Source: Menu and Food Production Plan or Converted Servings	Source: Food Buying Guide	Divide	Round Up
A. Number of Servings Needed	B. Number of Servings Per Purchase Unit from <i>Food Buying Guide</i> Column 3	C. Divide $A \div B = C$	D. Round Up to Ensure Sufficient Product is Purchased and Prepared

**Determine the number of cases needed.**

\_\_\_\_\_ lb ÷ 20 lb per case = \_\_\_\_\_ cases of frozen broccoli, cut and chopped.

## Handout 2: Combine Multiple Servings – by Volume (continued)

This is an excerpt from the *Food Buying Guide for Child Nutrition Programs*, Section 2, page 2-26 broccoli, frozen cut or chopped.

### Section 2—Vegetables/Fruits

1 Food As Purchased, AP	2 Purchase Unit	3 Servings per Purchase Unit, EP	4 Serving Size per Meal Contribution	5 Purchase Units for 100 Servings	6 Additional Information
<b>BROCCOLI (continued)</b>					
Broccoli, frozen <i>Cut or chopped</i>	Pound	9.60	1/4 cup cooked, drained vegetable	10.5	

### Handout 3: Combine Multiple Servings – by Volume with Key Answers

Serving Size Conversion for Multiple Servings					
Grade Groups	Projected Total Servings Needed	x	Serving Size Needed	=	Total Needed
K-3	297	x	1/4 cup (0.25)	=	74.3 cup
4-8	315	x	3/8 cup (0.385)	=	121.3 cup
9-12 and Adult	298	x	1/2 cup(0.5)	=	149.0 cup

**When the serving sizes are in ounces,** the total number of servings needed has been converted and this number used in Column A of Method 1 or 2.

**When the serving sizes are in fractions of a cup,** one additional step is needed. Divide the total number of cups by the serving size from Column 4 of the *Food Buying Guide* to get the total number of servings needed. This number is used in Column A of Method 1 or 2.

Additional Step for Cups:			
345	÷	0.25	= 1380
Total Number of Cups	÷	FBG Column 4 Serving Size	Total 1/4 cup Servings

Method 1 for Calculating the Amount of Food to Purchase			
Source: Menu and Food Production Plan or Converted Servings	Source: Food Buying Guide	Divide	Round Up
<b>A. Number of Servings Needed</b>	<b>B. Number of Servings Per Purchase Unit from <i>Food Buying Guide</i> Column 3</b>	<b>C. Divide</b> $A \div B = C$	<b>D. Round Up to Ensure Sufficient Product is Purchased and Prepared</b>
1380 1/4 cup servings of frozen broccoli	9.60, 1/4-cup servings per lb of frozen broccoli, cut or chopped	$1380 \div 9.6 = 143.75$ lb of frozen broccoli cut or chopped	143.75 rounded up = 144 lb of frozen broccoli, cut or chopped

Determine the number of cases needed.

$144 \text{ lb} \div 20 \text{ lb per case} = 7.2$  rounded up to 7.25 cases of frozen broccoli, cut and chopped.

### Handout 3: Combine Multiple Serving – by Volume with Key Answers (continued)

This is an excerpt from the *Food Buying Guide for Child Nutrition Programs*, Section 2, page 2-26 Broccoli, frozen cut or chopped.

#### Section 2—Vegetables/Fruits

1 Food As Purchased, AP	2 Purchase Unit	3 Servings per Purchase Unit, EP	4 Serving Size per Meal Contribution	5 Purchase Units for 100 Servings	6 Additional Information
<b>BROCCOLI (continued)</b>					
Broccoli, frozen Cut or chopped	Pound	9.60	1/4 cup cooked, drained vegetable	10.5	



National Food Service Management Institute  
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## Session Evaluation

**Instructions:**

Completely fill in the circle of your answer. Use a #2 pencil.

Please select only one response for each statement. Do not fold or crease this sheet.

Title of Meeting: _____	
Session Topic: _____	Trainer's Code: _____
Date: _____	Time Slot: _____ Location: _____ Length of Event (hrs/min): _____

**Attendee Status:**

- |  |   |  |
|--|---|--|
| <input type="radio"/> District director  | <input type="radio"/> Major city director       | <input type="radio"/> Private consultant/trainer |
| <input type="radio"/> State agency staff | <input type="radio"/> Site-level manager        | <input type="radio"/> Foodservice assistant      |
| <input type="radio"/> Educator           | <input type="radio"/> Other (please list) _____ |  |

Reaction to this Session					
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Please read the following statements related to the session. Rate your level of agreement by using the scale 5 (Strongly Agree) to 1 (Strongly Disagree).					
1. The session objectives were clearly presented.	⑤	④	③	②	①
2. The session objectives were achieved.	⑤	④	③	②	①
3. I can apply what I learned in this session to my job.	⑤	④	③	②	①
4. Attending the session increased my skill on the topic.	⑤	④	③	②	①
5. Attending the session increased my knowledge on the topic.	⑤	④	③	②	①
6. I would recommend this session to others.	⑤	④	③	②	①
7. Overall, the session met or exceeded my expectations.	⑤	④	③	②	①

Comments about this Session
<p><b>The information I found MOST useful was:</b></p> <hr/> <hr/> <hr/>
<p><b>Please share any additional comments:</b></p> <hr/> <hr/> <hr/>

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