Math-in-CTE Lesson Plan Template

Lesson Title: Recipe Conversion		Lesson #CA_07_Recipe Conversion_LP
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Occupational Area: Culiinary Arts		
CTE Concept(s): Recipe Conversion		
Math Concepts: conversion factor, scale, unit conversion, multiplication, division, rounding, decimals, place value		
Lesson Objective:	Students will demonstrate how to correctly increase and decrease a recipe yield using the conversion factor.	
Supplies Needed:	Variety of recipes, calculators, paper and pencils	

THE "7 ELEMENTS"	TEACHER NOTES (and answer key)
1. Introduce the CTE lesson. **Ask students to write a quick response to the question "what does yield mean?"** **A really important skill that you need to master is converting recipes. The amount that a recipe makes is called the yield. Sometimes it is necessary to change the recipe to get a smaller or larger yield. An example might be if we need 54 whoopie pies and our recipe only makes 20. We could triple the recipe, but then we would have 6 more than we need, which wastes time and resources, both of which drive up cost.** **This lesson will teach you how to convert a recipe. You will be shown how to do this using division and multiplication.**	On the board write the word yield. Answer examples: Yield the right of way, the end result, etc. This lesson also helps target ingredient lists for shopping. This is a good time to talk about equipment choice as well. For example, when making soup, the student needs to decide if a sauce pan or a stock pot is appropriate to make soup based on the volume of product being made.

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2. Assess students' math awareness as it relates to the CTE lesson.	Write the prompt on the board.
You have a recipe that yields 24 cups of soup. There are 48 people coming in for lunch and they are all having soup. What do we need to do to the recipe?	Students should say that you would double the recipe.
	Cross out the 48 in the prompt and replace it with 62.
What if 62 people were coming in for soup? What do we need to do to the recipe then? Think about this for a minute and write down your answer. Now turn to your neighbor and share your thoughts. (Think-Pair-Share)	Students may make suggestions, but may not know how to approach the problem. Tell them that they will need to find the conversion factor, which you will teach them how to do.
3. Work through the math example *embedded* in the CTE lesson.	Give students the chicken and rice soup recipe.
Today we will be using a recipe for chicken and rice soup. The recipe yields 15 8 oz servings. We need to convert this recipe to yield 70 8 oz servings. To do this we need to find the conversion factor. A conversion factor is a number you use to find the correct amount of each ingredient needed to increase or decrease a recipe. Once you know the conversion factor, you multiply all ingredient measurements by the conversion factor to find out how much of each ingredient you need.	Write the conversion factor formula on the board.

Write the example on the board. |
| The conversion factor formula is:

 desired yield ÷ existing yield=conversion factor | The result of the calculation is a repeating decimal. Remind students how to round numbers. (4.66666 rounds to 4.7 because the rounding rule tells you to round up if the value is 5 or more). |
| For our recipe that would look like this: 70÷15=4.7 | |
| Now let's apply this conversion factor to each ingredient in the recipe. Two of the ingredients have been done for you. | Discuss the answers for WS01 and how to interpret decimal portions in a recipe. |
| (see worksheet WS01) | You can also use unit conversion to find the most convenient unit of measure. For example:

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4. Work through *related, contextual* math-in-CTE examples. Now let's look at another culinary example. (See worksheet WS02)	
5. Work through *traditional math* examples. Let's apply the concept of using a conversion factor outside of the culinary world. (See worksheet WS03)	Note: Answers to worksheet are in feet. For differentiation and/or additional practice of prior learning, students can do **unit conversions** to convert their answers from feet to inches.
6. Students demonstrate their understanding. (Students demonstrate their understanding by oompleting worksheets WS02 & WS03)	
7. Formal assessment. We have been using conversion factors to increase and decrease the yield of a recipe. Today we are going to take a simple chicken stir fry recipe and convert it from 4 servings to 17 servings. Once you have successfully converted the recipe, you will be able to go into the kitchen and prepare this dish. (See worksheet AS01)	

NOTES: