Math-in-CTE Lesson Plan Template

Lesson Title: Butter Awareness Week (Measuring Butter)		Lesson # 8		
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Occupational Area: Culinary Arts				
CTE Concept(s): Portioning food items				
Math Concepts: Visual reasoning, approximation, fractions, division				
Lesson Objective:	Students will be able to accurately and appropriately measure butter.			
Supplies Needed:	Butter, recipes that involve butter, scales, 2 equal sized pans of brownies			

THE "7 ELEMENTS"	TEACHER NOTES	
 Introduce the CTE lesson. <u>Day 1</u> "We work with butter everyday. You are always wondering how to measure out the proper amount. When you are in a professional kitchen this is something that you need to know. So we are going to spend some time getting to know this block of butter and how to measure it." 	This lesson is designed to progress over a number of days. Day of the lesson is indicated in the left column.	
2. Assess students' math awareness as it relates to the CTE lesson.	Have a one pound block of butter for reference.	
<u>Day 1</u>		
(This actually occurs before the introduction to the lesson.)		
"I am going to ask you some questions about measuring butter. I want you to rate your comfort .		
Thumbs up – Yes I can!		

Thumb side ways – Maybe I can.	
Thumbs down – No I can't. :(
Question 1 – Can you measure 1 cup of butter from a one pound block?	
Question 2 – Can you measure 4 ounces of butter from a one pound block?	
Question 3 – Can you measure 2 tablespoons of butter from a one pound block?"	
(Now go to introduction.)	
3. Work through the math example embedded in the CTE lesson.	Depending on your group and your own interest, you may
<u>Day 1</u>	or may not want to use the "Magic Ruler" as a tool during
"Today we are going to learn how to break down a pound of butter into cups. How many cups are in the whole pound?"	labeling it with the appropriate fractions, then with the appropriate cups and then the appropriate ounces.
2 cups	
"Now I am going to cut it in half. How many cups are in each half?"	
1 cup	
"Now I am going to cut each half in half. How many cups are in each piece? How much of the whole block is each piece?"	
$\frac{1}{2}$ cup, $\frac{1}{4}$ of the whole	
"Now I am going to cut each stick in half. How many cups are in each piece? How much of the whole block is each piece?"	
¼ cup, 1/8 of the whole	
"How would you measure $\frac{3}{4}$ cup? How would you measure 1 $\frac{1}{4}$ cups? How would you measure 1 $\frac{1}{2}$ cups?"	
$\frac{1}{2}$ cup and $\frac{1}{4}$ cup, 1 cup and $\frac{1}{4}$ cup, 1 cup and $\frac{1}{2}$ cup	
"With your partner, figure out how you will measure out the butter for your recipe. When you have a plan, you will demonstrate and explain how to measure the butter to me. While you are waiting for me, you can continue your mise en place. Once you have shown me how to measure your butter, you may prepare your recipe."	

Day 2	
Repeat same question sequence with butter measured in ounces. Have students prepare a recipe with butter measurement given in ounces.	
4. Work through related, contextual math-in-CTE examples.	Have two 8-ounce boxes of chocolate to use for demonstration.
<u>Day 3</u>	
"We have talked about how to divide a block of butter into a certain portion. Now we are going to use this same idea to divide a pound of chocolate. How would I get 8 ounces of chocolate? How do I get 4 ounces? How do I get 2 ounces?"	We are using brownies for this recipe, but you may use any recipe that would would give students a food item that can be easily divided in a rectangular pan.
"Now let's apply this same idea to a pan of brownies."	See worksheet CA_08_MeasuringButter_WS1. Note the front side is for Group A and the back side is for Group B.
Split students into 2 groups and give each group the worksheet.	The discussion between the two groups is a great opportunity for stretching the rubber band. Each group is actual getting the same amount of the brownies even though they are getting a different number of brownies because each is getting 1⁄4 of the same size pan. This could develop into a discussion about portion control, food cost and customer satisfaction.
"Group A, how many brownies do you each get to take home?"	
4 brownies	
"Group B, how many brownies do you each get to take home?"	
3 brownies	
"Is that fair?" Discuss.	
5. Work through <i>traditional math</i> examples.	If you need an example, this skill could be used when
"Now we're going to look at a sheet where we're dividing shapes into equal parts. This is very similar to what you just did with the brownies, only it looks more like something you would see in any other context. You might see this in geometry or building something, or any variety of places"	building something from a length of board. The worksheet is on a very elementary math level, however, it's basics students need to know. Also, it would be relevant to them as a pre-activity necessary to answer a standardized test question.
	See CA_08_MeasuringButter_WS2.

6. Students demonstrate their understanding. "I'm giving you a recipe that includes butter. Wait for me to come around to measure you're butter. While you're waiting, complete the rest of your mise en place. When you measure your butter, I'll be looking for you to accurately cut the butter into the appropriate measurement."	Give the students a recipe that involves butter. Also show the students the rubric you will be using to assess their measurement of the butter.
7. Formal assessment.	Use the butter measurement rubric to assess the students.
Make the rounds to each student individually and grade their butter measurement using the rubric. Correct students as necessary.	

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