Math-in-CTE Lesson Plan Template

Lesson Title: Recipe Costing	Lesson #5 July 14, 2011	
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Occupational Area: Culinary Arts		
CTE Concept(s): Recipe Cost Analysis(Where does your money go?)		
Math Concepts: unit pricing, formulas, rounding, fractions, Add, Multiply, divide, substituting data into formulas		
Lesson Objective:	Student should be able to find the total cost of a recipe by breaking down each unit cost to gain an understanding of the value of scratch cooking verses ready-to-eat food. Students need to be able to understand the financial impact of specific ingredients.	
Supplies Needed:	Calculator, White Board, Worksheets, Subway Sandwich, scale, cereal, measuring cups	

THE "7 ELEMENTS"	TEACHER NOTES (and answer key)
1. **Introduce the CTE lesson.** **Is it cheaper to purchase ready-to-eat food or prepare you own by buying your own ingredients?** Class discussion, for example:	Class discussion Show of hands List various types of sandwiches on board.

4 friends weekend night pizza cost $15.00 Total Cost $18.00 (includes tax and delivery) How much does each person pay? **Do any of you eat at Subway?** **What type of sandwiches do you eat?** **How about a Black Forest Ham Footlong? The Footlong Sandwich is actually a recipe. What's in it?** **Today we will find out the actual cost of the sandwich. What does that mean to you?** **If this is about recipe costing then where do we begin?**	List all of the ingredients on board(Double Check with Ingredient List) **Students may not suggest all items, that's ok.** Teacher is looking at the actual cost of each ingredient verse the Subway Sandwich. Will the cost effect your spending/eating habits? Have ingredient list and whole prices available for class.(Sheet provided but may need updating).
2. Assess students' math awareness as it relates to the CTE lesson. **What does unit pricing mean?** **What does unit mean?** Examples: Sauce pan, measuring cups, jar of pickles, mayo, chickpeas(small and large), glass, pitcher, serving size demo(cereal). **ASK: What are the differences in unit types?** **ASK: How do we figure out unit cost?** **ASK: When is it appropriate to round?** **ASK: When do you round? What does it mean to round up?** Act: If a sandwich has 15 pickles and a jar of pickles contains 300 slices and cost $4.29, how much would the sandwich pickles cost?	Make sure students understand what one unit is. Actual cost of one ingredient and/or one complete recipe. Ounce, pound, each, serving size, case, gallon, etc. Accuracy of units verses types of units(ounces or cups) Develop cost per unit charts per ingredient list. Divide total cost by unit. CA_05_IngredientPriceList_WS1.doc (Subway ingredient price list) Discuss with student the possible need to estimating up i.e. you need a specific amount of product but it comes in small sizes. You may need to purchase a larger quantity

Tell students that all rounding should happen at the end or your calculations.	then what you are use. 
3. Work through the math example *embedded* in the CTE lesson. Use Subway sandwich dissection. Students will assist in measuring, weighing, determine units in the sandwich. Say: "As each ingredient is found in the sandwich, you can write down the amounts need for ingredient to make the sandwich." PB&J Practice Worksheet for student to gain understanding of Recipe Cost procedure.	Take apart Black Forest Ham Footlong Sandwich. List amounts of individual ingredients on board (student can write on CA_05_RecipeCostTemp_WS3.doc). Work through worksheet with students to come up with actual cost for the sandwich. Math Connections: 1. Division bar means "per". Example: $9.95/pp 2. Rounding should occur at the final calculation. When rounding decimal places the number 5 or greater should round up and less than 5 stays the same, however, when dealing with money the practice is to round up. **Explain about student process with pb&j** Food for Thought: How many sandwiches can we get out of one jar? Which ingredient is limiting our production? CA_05__RecipeCost_WS2.doc(Practice for students) CA_05__RecipeCost_AS2.doc(Practice for students) Fill out worksheet. (List of ingredients and amount) Go over units again in the exercise.

4. Work through *related, contextual* math-in-CTE examples.	
Cost Out Subway Sandwich	CA_05_SubwaySandwich_WS8.doc
Say: Let's start costing out the units and go over the sliced pickle example.	CA_05_SubwaySandwich_AS8.doc
Kids need to complete the sandwich price list.	
	Do students understand parts of a whole(division)? When is rounding appropriate?
	Food for Thought: How many units can we produce with purchased ingredients? How can we maximize our products with minimizing our waste? Which product has the largest financial impact on our production? Which item can you afford to waste?
5. Work through *traditional math* examples.	
Work Sheet	Explain Rounding Example: $6.2543 = $6.26
	Traditional Math Problems
Talk to students more about rounding and money.	CA_05_TraditionalMath_WS7.doc(Typical Math, SAT, ACT)
Possible worksheet on rounding.	

6. Students demonstrate their understanding. Apply our math concepts to other situations Worksheet Completion Peach Sherbet Potato Salad Toasted BLT	Review of math concepts CA_05__RecipeCostSherbet_WS4.doc(Practice for students) CA_05__RecipeCostPotatoSalad_WS5.doc(Practice for students) CA_05__RecipeCostBLT_WS6.doc(Practice for students) Cruise around classroom reinforcing traditional math concepts with the CTE applications.
7. Formal assessment. Students will pick a random recipe from a cookbook or culinary magazine. They will cost a recipe on their own using the template. Use Rubric to assess students.	CA_05_RecipeCostTemp_WS3.doc Note: All answer sheets are on file. Ruberic: www.usm.edu/gep/docs/NFS_group_project_rubric.htm

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