Math-in-CTE Lesson Plan Template

Lesson Title: Unit Cost		Lesson # 3
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Occupational Area: Culinary A	rts	
CTE Concept(s): Unit Cost		
Math Concepts: Computation, Decimal, Rounding, Money, Units		
Lesson Objective: Stu	dents will determine and de	escribe unit cost.
Supplies Needed: Culinary Math Unit Cost Worksheet, Alternative Assessment Worksheet, Poster Boar calculator, paper and pencils, 5lb bag potatoes, case of broccoli (optional)		

THE "7 ELEMENTS"	TEACHER NOTES
	(and answer key)

1. Introduce the CTE lesson.	
Teacher says " Today's lesson is one of the most important pieces of information needed for cooks and chefs." " To determine how much it cost to make a recipe, you must first determine how much each ingredient cost."	Present students with a word sort list written on the board that includes: cm, teaspoon, meter, cup, ounce, yard, pound, mm, case, box, piece, miles, count, inch, bundle.
	WORD SORT: A literacy strategy that involves allowing students to use a bank of words or terms to create lists or groups that the students believe are linked. This exercise familiarizes students with the vocabulary that will used in the lesson and allows them to apply background knowledge of the subject. This gives the instructor an assessment tool to gauge prior knowledge of the student.
	To prepare words for word sort you can have them written on the board in random order. Or you may choose to create these words on index cards or pieces of paper for students to manipulate at their seat. (This is useful for tactile learners.)
	 Have students divide the words into groups (allow 4 minutes) and give these groups names or explain why they are grouped together.
	2. Have them share their results with a neighbor.
	Ask for volunteer to share their list as the teacher writes the list on the board. As for second volunteer and repeat.
	4. Ask whole class for commonality between the two lists.
	Explain to students that each of these words are units of measure and have them rearrange the words into cooking and non-cooking groups as a whole class with teacher writing the new list on the board.

 Assess students' math awareness as it relates to the CTE lesson. "How much does each potato cost?" 	Teacher demonstrates using a 5 lb bag of potatoes. Write on the board the cost of the bag of potatoes and have a student come up and count how many potatoes are in the bag and lay them out in front of the class. Teacher asks,
	Have students do the work on a calculator and record it on the paper as teacher walks around and checks their work.
	Teacher is observing only. Do not make corrections at this point.

3. Work through the math example <i>embedded</i> in the CTE lesson.	Remember to remind students that each potato is the unit.
Each potato is a unit. This unit is called "a piece" or sometimes	Bulk Cost ÷unit = unit cost.
referred to as "a count". Lets see what this might look like.	\$3.99 for a 5lb. bag of potatoes
	3.99 divided by how many potatoes were in the bag.
(On the board do this problem)	There were 13 potatoes in this bag.
Bulk Cost ÷ unit = unit cost.	\$3.99÷13 pc =\$.306 rounded up to \$.31 for each potato.
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"Sometimes people don't know which number should be divided by which number. Here is an easy way to know if you are doing it right. You answer should be reasonable; let me show you what I mean."	Discuss rounding to the penny when calculating cost. In math class this would be referred to the hundredths place.
 (Teacher writes equation on the board) "13 potatoes divided by \$3.99. The answer will be \$3.26. Does this answer look right. Do you think that each potato costs \$3.26 a piece? The whole bag cost \$3.99. What happened?" "From math class you may remember the terms dividend and divisor. You may recall that the bag of potatoes is the dividend because it is the number being divided. The number of potatoes in the bag is called the divisor. When using a calculator the dividend should be entered first then divided by the divisor." 	Note: in this class money will always be in the numerator and the item will be in the denominator. If students get \$3.26, then they have the reciprocal of the actual unit price.
"An easy way to know which is the divisor is to remember that you will be dividing by the divisor. DIVIsor and DIVIde sound similar."	
"Another way to check your answer is to multiply your answer by the divisor. In this example you would write \$0.31∘13 = \$3.99	
Teacher does the equation the correct way and explains to students that they need to be able to look at their answers and decide if the answer looks reasonable.	
Teacher reminds students "bulk cost divided by the number of units equals unit cost. The bulk price is put into the calculator first and is divided by the number of units."	Dividend : a number that is being divided. Divisor : a number that is being divided into another number.

4. Work through <i>related, contextual</i> math-in-CTE examples.	Teacher hands out Culinary Math Unit Cost Worksheet .
Lets practice doing some unit costing of some culinary items.	Have students complete worksheet. As some students are finishing their work have them go into the kitchen and find random example units of culinary wares. Pie plates, straws, cups, etc. and food stuff also.
If you finish early I have another activity for you to do.	When all students are finished go over worksheet answers with them. Work with those who need help. Students who successfully complete the worksheet get the second worksheet (non culinary or traditional math). All students will work on both worksheets but depending on each skill set this might not happen at the same time.
	Real world connection: Some stores post both the unit price and the bulk price on their shelves. The bulk price is in larger print on the right hand side of the shelf tag and may be highlighted in orange. The unit price is usually in smaller print on the left hand side of the shelf tag. Looking at the unit price allows you to compare prices of items that are packaged in different sizes to choose which is the better deal.
	Students may also visit this site for a short 3 question quiz on unit cost.
	http://www.umass.edu/nibble/quizzes/pricquiz.htm

5. Work through <i>traditional math</i> examples.	Note: It is customary to include the unit in your answer.
Lets practice some more examples that you might see in your math book.	Have students complete the traditional math worksheet while continuing to include both traditional and culinary Math vocabulary.
	Real world connection: Some stores post both the unit price and the bulk price on their shelves. The bulk price is in larger print on the right hand side of the shelf tag and may be highlighted in orange. The unit price is usually in smaller print on the left hand side of the shelf tag. Looking at the unit price allows you to compare prices of items that are packaged in different sizes to choose which is the better deal.
	Real world connection: THE WORK HAS BEEN DONE FOR YOUKIDS LOVE THISJUST LOOK AT THE SHELF TAG TO SEE WHAT SIZE PACKAGE IS THE BEST PRICE.

6. Students demonstrate their understanding.	Have students complete both the Unit Cost worksheets.
So now that we have practiced both culinary and traditional matl unit costing lets look at what we have here in our kitchen.	Once students have finished both worksheets be sure to correct them using the answer sheet. Answer any questions students have to make sure they understand the process. Students should not leave the class with misconceptions about the math.

7. Formal assessment.	Using an invoice or receipt from your supplier allows the students to
Now lets look at a current invoice or receipt from your food supplier and have them determine the unit cost for your supplies.	see that the foods they will be using really cost something. This may help with their appreciation of the food and the cost of any future waste.
Once you get the invoice costed out make a Unit Cost Poster tha shows the unit costs of the most common ingredients used in your kitchen. A Bakeshop ingredient list is common, useful and relevant.	Another great way to engage students is to allow them to touch and feel the real food products they will be using and costing. Example: A case of broccoli crowns is 20 lbs. Have the students take all of the broccoli out of the case and count each crown. The case of broccoli is usually iced down and needs to broken down into bus tubs. Now the students can calculate the cost per crown, spear or floret if you choose.
	You could also allow students to access this web site or use a printed version of this worksheet.
	http://teacherweb.com/NY/StMartindePorres/MissVaczi/UnitPrice9ques tions.pdf

NOTES: