Math-in-CTE Lesson Plan Template

Lesson Title: Waste		Lesson: CA-09	November 4, 2011	
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Occupational Area: Culinary Arts				
CTE Concept(s): Waste (Where does some of your money go?)				
Math Concepts: Percents, Part of a whole, fractions, Add, Multiply, divide, substituting data into formulas				
Lesson Objective:	Objective:Student should be able to find the percentage of loss from any product. They can calculate the waste and find the loss in product as well as the financial impact.The overall math goal is for students to grasp the concept of percent change, percent decrease, or percent loss.			
Supplies Needed:	Calculator, White Board, Worksheets, Apple, scale, peeler, pairing knife.			
THE "7 ELEMENTS"			Т	EACHER NOTES (and answer key)
1 Introduce the CTE lesson			Students should alread	v have an understanding of fractions and

	students should already have an understanding of fractions and
Define waste.	percents.
How much does the average Mainer waste? How much does a restaurant waste? What does waste cost?	Class discussion. Waste is non-reusable product. Usable product discarded (this is our focus). Waste is excess product discarded.

	Display or handout via video waste fact charts.
Overview of waste examples.	CA_09_Waste_HO
Class Discussion.	CA_09_Waste_HO1
Things students waste on a daily basis, then family, then restaurants.	
How about in our kitchen? Daily, Weekly waste?	Ask kids for examples of their daily waste?
On a smaller scale lets take an apple as an example.	
Ultimate value of waste is cost in dollars? Discuss.	Ask about household waste?
	Ask about our kitchen's waste.
	www.christianchefs.org/charts/yields.html
	Zone in on usable product discarded.
2. Assess students' math awareness as it relates to the CTE	Weigh whole apple.
lesson.	Use the apple as an hands on example of waste and parts of a whole.
Discuss part of the whole?	i.e. skin, stem, core, meat(fiesn, fruit).
Estimate the percentage of waste.	Have the kids guess. Weigh edible parts of apple.
How do we find the percent lost?	Discussion
3. Work through the math example <i>embedded</i> in the CTE lesson.	Math Connections:
	Calculate the difference of the apple divided by the original weight.
What percentage of carrots would you have left if 2 carrots fell through the hole in your bag of carrots. You started with six carrots?	
Five weeks ago you decided to eat better and exercise on a regular basis. You originally weighed 150 pounds and now you weigh 140 pounds. What percent did you loose?	

A Work through related contextual math in CTE examples	Materials peoded: Apples, peolers, pairing knives, and scales
 4. Work through <i>related, contextual</i> math-in-CTE examples. Each student will weigh and apple. Students will now peel, core and weigh an apple. The apple remaining will then be weighed. Students will then calculate percentage of waste. 	Have students work through the process of separating the waste from the apple. Faster students can do two apples, one with a peeler and the other with a knife.
	Worksheet available for extra practice. CA_09Waste_WS1.doc(Practice for students)
 5. Work through <i>traditional math</i> examples. Percentage of loss or discount. 1. Sally bought a cell phone on for \$54.00. The original price was \$90. What percent decrease did Sally save? 	Review: Reducing Fractions, changing decimals to percentages, and rounding.
2. Billy saw a cop on the highway so he quickly reduced his speed from 85 mph to 50 mph. Find the percent of decrease in his speed.	2. <u>http://www.algebralab.org/Word/Word.aspx?file=Algebra_PercentsII.xml</u> <u>http://www.themathpage.com/arith/Ar_Pr/per4_1.htm</u>
6. Students demonstrate their understanding. Apply our math concepts to other situations	Review of math concepts CA_09_Waste_WS2.doc CA_09_Wase_ANS2.doc

7. Formal assessment.	Challenged learners should be given the apple again.
Each student will be provided a product to trim or prepare. Then each student will need to weigh and calculate the percentage of product loss.	Offer other products based on students ability.
	CA_09_Waste_AS1.doc
	Ruberic: www.usm.edu/gep/docs/NFS group project rubric.htm

NOTES: Continue to check on student waste throughout the year. Have them recalculate the percentage of waste.

Discuss waste versus cost. Discuss alternative uses of waste.