

# Math-in-CTE Lesson Plan Template

Lesson Title: Measuring/Scaling		Lesson #CA-01
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Occupational Area: Culinary Arts		
CTE Concept(s): Learning measuring weights on Culinary Scales		
Math Concepts: Measuring ,decimals,multiplication,fractions,ratios, proportions.		
Lesson Objective:	Student will be able to use various scales to accurately measure food items on a recipe.	
Supplies Needed:	Bakers balance scale, Portion scale, Digital scale, Rice, Flour,salt, sugar,yeast ,shortening and milk solid.	

THE "7 ELEMENTS"	TEACHER NOTES (and answer key)
<p><b>1. Introduce the CTE lesson.</b></p> <p><b>Baking is a science that requires that requires accurate measuring equipment to accomplish this task.</b></p> <p><b>Today we will look at various types of measuring equipment used for weighing ingredients in the foodservice industry.</b></p> <p><b>There are many measuring and weighing equipment used in today's foodservice operation.</b></p> <p><b>A. What types of measuring equipment have you used while measuring food items in the past ?</b></p> <p><b>There are a few scales that we will cover in today's lesson they are balance bakers scale,portion scale and digital scale.</b></p> <p><b>Weight is the measurement that tells how heavy something is. Measuring by weight is the most accurate way to measure foods such as flour, sugar, salt, yeast, and milk solid.</b></p> <p><b>B. Has anyone used a balance bakers scale before?</b></p> <p><b>Today I am going to demonstrate how to use the balance scale to weigh dry ingredients that you would see in a commercial kitchen.</b></p>	<p>Have the various types of scaled out so students can see them while you explaining the parts of the scales and how to use them.</p> <p>Digital Scale, Bakers Balance Scale, Portion Scale.</p> <p>Most students will respond by saying that they have used measuring cups , teaspoons and tablespoons.</p> <p>See if any students respond and let them explain where and at what kitchen they might have used them in.</p>

<p><b>2. Assess students' math awareness as it relates to CTE lesson.</b></p> <p><b>C. Does anyone know how to identify the parts of a balance scale?</b></p> <p><b>A balance scale can measure weight as little as .25oz. and up to about 10lb.</b></p> <p><b>What is a portion scale?</b></p> <p><b>Can anyone give an example of what might be weighed on a portion scale?</b></p> <p><b>D. What might an electronic scale look like?</b></p> <p><b>E. Can you figure how weight is added for each click of bakers balance ?</b></p>	<p>Give time for students time to respond.</p> <p>Bring out examples of various types of scales and volume measurements equipment.</p> <p>Balance scale, also called a bakers scale has two platforms. One for holding weights and one for food item being weighed. The weights range from 2lb. 4lb. 8lb. The horizontal beam runs across the front of the balance scale. The beam has a weight attached to it and is graduated in quarter oz. The weight is placed on the ounces when one wants to weigh and the weight can go up to 16 oz. ( 1lb)</p> <p>Each click is worth .25 oz.</p> <p>Portion scale or spring scale weighs items by measuring how much the spring is depressed when an item is placed on its platform.</p> <p>Electronic scale or digital scale is a lot like a spring scale it has a spring that is depressed when an item is placed on it. The weight is displayed in numbers on a digital readout rather than by a needle.</p> <p>Note. Provide a few examples for the students to weigh such as uncooked rice.</p>
<p><b>3. Work through the math example <i>embedded</i> in the CTE lesson.</b></p> <p><b>Have students take recipe work sheet on soft roll dough and fill in the blanks and complete questions 1-4</b></p>	<p>Provide a bread recipe worksheet that students will complete and cover in class to assess students math skills on understanding weight and measurement.</p> <p>Work sheet #1 Soft Roll Dough Recipe</p>
<p><b>4. Work through <i>related, contextual</i> math-in-CTE examples.</b></p> <p><b>Have students practice measuring ingredients for the Soft Roll Dough using the various scales for later use.</b></p>	<p>Identify students that need practice with understanding of usage of horizontal beam and have them do the ruler game for practice. Located at the following URL</p> <p><a href="http://www.rsinnovative.com/rulergame">www.rsinnovative.com/rulergame</a></p>
<p><b>5. Work through <i>traditional math</i> examples.</b></p> <p><b>Now lets try to work through the examples given on the work sheet.</b></p> <p><b>Notice that the ruler and scale on the ruler is measured in inches instead of oz.</b></p>	<p>Work sheet # 2 on lb. and oz.</p> <p>Fractional powerpoint online worksheet. (optional worksheet for students that need more practice.)</p>
<p><b>6. Students demonstrate their understanding.</b></p> <p><b>You will be given a bread recipe to measure the ingredients and follow recipe to measure dry goods and shortening to</b></p>	<p>Use bread recipe that will be given to have students work together in small groups to measure ingredients for soft roll dough that will be used next class.</p>

<p><b>prep ingredients for Soft Roll Dough.</b></p>	<p>Worksheet # 4 Soft Roll Dough</p>
<p><b>7. Formal assessment.</b> <b>Finished Soft Roll Dough set up and completion of work sheet.</b></p>	<p>Prepare bread recipe by following recipe and baking it. Quality control bread with students and score with a rubric which evaluates the following : Quality, taste, salability, texture. Rubric will be uploaded at a later date.</p>