

Math-in-CTE Lesson Plan Template

Lesson Title: Scale Operation		Lesson # CA13
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Occupational Area: Culinary Arts		
CTE Concept(s): Measurement Equipment, Measurement Precision,		
Math Concepts: Fractions, Decimals, Units		
Lesson Objective:	To learn to identify, correctly operate and accurately measure ingredients utilizing a portion, bakers, and digital scale.	
Supplies Needed:	Portion Scale, Bakers Scale, Digital Scale, items to be measured (rice, water, confectionary sugar, salt)	

THE "7 ELEMENTS"	TEACHER NOTES (and answer key)
<p>1. Introduce the CTE lesson.</p> <p>Can anyone tell me what these are, and what they can be used for?</p> <p>There are three different types of weight measuring pieces of equipment such as Digital Scale, Spring Scale and Balance Scale, they all measure lbs and oz., and can measure as little as a ¼ oz at a time.</p> <p>You'll also see some math terms like fraction, numerator, denominator</p>	<p>Have all three scales out with ingredients to be measured, qt measuring c, and stainless steel bowl scoop for measuring dry ingredient.</p> <p>Show students how to operate and troubleshoot the measuring equipment.</p> <p>Fraction a number written as a/b.</p> <p>a is the numerator, and b is the denominator</p> <p>a fraction can also be written as a decimal</p> <p>example: $\frac{3}{4} = 0.75$</p> <p>If there is a whole number with a fraction it is called a mixed number</p>

	Example: $1 \frac{1}{2} = 1.5$ (add the whole number to the fraction)
2. Assess student's math awareness as it relates to the CTE lesson Which one of these containers represents 4 oz of powdered sugar?	Have $\frac{1}{2}$ c of powdered sugar and 4 oz by weight side by side. Have $\frac{1}{2}$ cup of confectionary sugar and 4 oz by weight side and show that the weight is different than the volume.
3. Work through the math example <i>embedded</i> in the CTE lesson. How many ounces are in a pound? How many ounces are in $\frac{1}{2}$ lb? How many ounces are in $\frac{3}{4}$ lb? How many ounces are in $\frac{7}{8}$ lb? When measuring certain dry ingredients you need to take into consideration that some dry ingredients such as milk solid will need to be weighed instead of using volume measurements.	Answers: 16 8 12 15 Demonstrate how to weigh various ingredients on the three scales types of scales. Measure 1 lb of rice and 1 lb of water. Measure $\frac{1}{2}$ lb of rice and $\frac{1}{4}$ lb of rice Have a student volunteer to come in front of the students to demonstrate knowledge of how to operate the various scales.
4. Work through <i>related, contextual</i> math-in-CTE examples. Let's convert these fractional weights to lbs and ounces 1 $\frac{1}{2}$ lbs 1 lb plus $\frac{1}{2}$ lb. since 1 lb = 16, then $\frac{1}{2}$ lb = 8 oz. 3 $\frac{3}{4}$ lbs	1 lb 8 ounces 3 lb 12 ounces

<p>What if I had a different measuring scale?</p> <p>What would 3 $\frac{1}{2}$ ft be if I wrote it in ft and inches.</p> <p>Since there are 12 inches in a foot it would be 3 ft 6 inches.</p>	<p>Have them complete the CA13_Fraction to Ounces_WS worksheet.</p> <p>Use CA13_Scale Operations_WS3</p>
<p>5. Work through <i>traditional math</i> examples.</p> <p>Here are some traditional examples you might see in your math class.</p>	<p>The links are manipulative for display purposes. Project on the board and show the class.</p> <p>The first link has you drag a fraction to a proper location on a number line.</p> <p>The second link can be used as a visual to represent the number line on the bakers scale. Change the length to 8 and click new twice. It will create two bars 8 units long, and place them end to end.</p> <p>http://maine.edc.org/file.php/1/tools/FracNumLnLocate.html</p> <p>http://nlvm.usu.edu/en/nav/frames_asid_203_g_2_t_1.html?from=topic_t_1.html</p> <p>Also use the CA13_Fraction and Decimals_WS Worksheet.</p>
<p>6. Students demonstrate their understanding.</p> <p>Now you are going to practice in groups taking some measurements of various ingredients.</p> <p>Measure the following weights with each of the three scales.</p> <p>4 oz.</p> <p>1 $\frac{1}{2}$ oz</p> <p>3.75 lb</p> <p>lb</p>	<p>In 3 groups, have them work at each station to properly measure ingredients that can be reused (dry, beans, rice, etc.)</p>

<p>7. Formal assessment.</p> <p>As a final assessment, you are going to make some measurements to see if you can use the scales properly.</p>	<p>Students will be assessed by their ability to properly measure ingredients, and assessed by a rubric.</p> <p>Use the CA13_Scale Operation_AS</p>

NOTES: