

# Math-in-CTE Lesson Plan

## Technical Mathematics

<b>Lesson Title:</b> Budget Unit Test <b>Writers:</b> Katie Dykas and E. Bazek	Lesson #2
---	-----------

**Technical Area:** Business/ Cooperative Education

**CTE Concept:** Budgeting

**Math Concepts:** Addition, subtraction, multiplication, division, fractions, decimals, etc.

**CCSS Math Practices & Standards:**

CC.K-12.MP.3 Construct viable arguments & critique the reasoning of others.  
 CC.K-12.MP.4 Model with mathematics.

CC.7.EE.4 Solve real-life and mathematical problems using numerical and algebraic expressions and equations. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

CC.9-12.S.ID.5 Summarize, represent, and interpret data on two categorical and quantitative variables. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data\*.

**Workplace, CCSS ELA, and/or NGSS Standards:**  
 Lockport Township High School Standards  
 8A Compute daily math computations relating to managing your personal finances

Lesson Objectives:	Calculate monthly gross pay. Differentiate between fixed expenses and flexible expenses. Balance a budget.
--------------------	--

Supplies Needed:	Pencil, paper, and calculator (optional)
------------------	--

<b>THE "7 ELEMENTS"</b>	<b>TEACHER NOTES</b> (Answer Key)
<p><b>1. Introduce the CTE lesson.</b></p> <p>Ask the students questions, such as:</p> <ol style="list-style-type: none"> <li>a. Who spent money today?</li> <li>b. Who spent money yesterday?</li> <li>c. How much did you spend last week?</li> <li>d. Who went to the dance?</li> <li>e. Who ate McDonalds in the past week?</li> <li>f. Who went to the movies?</li> <li>g. Who has a cell phone? Cost of plan?</li> <li>h. Who has their own car?</li> </ol>	<p>Use things in class to draw students' attention:</p> <ol style="list-style-type: none"> <li>a. Drinks they have at their seat</li> <li>b. Food they might be eating in class</li> <li>c. Events you know took place (e.g., the dance was last week)</li> <li>d. How much is your cell phone bill?</li> <li>e. Who has a car?</li> </ol>

**2. Assess students' math awareness as it relates to the CTE lesson.**

How much money do you bring home a month?

Before taxes?  
After taxes?

What do you spend daily at Starbucks, Dunkin' Donuts, McDonald's, etc.?

See attached "Let's Start Budgeting" worksheet.

Name \_\_\_\_\_

**Let's Start Budgeting!!**

**Part I.** Write down everything you spent money on in the past week. Write what you spent money on and how much.

Item	Cost of Item	Item	Cost of Item
1.		8.	
2.		9.	
3.		10.	
4.		11.	
5.		12.	
6.		13.	
7.		14.	
<b>TOTAL COST ON ALL ITEMS</b>	<b>\$</b>		

**Part II.** Write down all of your monthly expenses. Write what it is and how much it cost.

Item	Cost of Item	Item	Cost of Item
1.		5.	
2.		6.	
3.		7.	
4.		8.	
<b>TOTAL COST ON ALL ITEMS</b>	<b>\$</b>		

Your hourly wage \$

Average numbers of hours you work a week

Now take your hourly wage of  X  (number of hours you work a week) \_\_\_\_\_

Put the total you get here . This is your weekly income

Now take your weekly income of  X 4 =  **This is your monthly income**

**3. Work through the math example embedded in the CTE lesson.**

To make students aware of their monthly GROSS pay, I typically complete the part of the worksheet to the right as a demonstration using the following scenario:

An employee makes \$10.00 an hour and works an average of 30 hours a week.

Your hourly wage \$

Average numbers of hours you work a week

Now take your hourly wage of  X  (number of hours you work a week) \_\_\_\_\_

Put the total you get here . This is your weekly income

Now take your weekly income of  X 4 =  **This is your monthly income**

**4. Work through related, contextual math-in-CTE examples.**

**See Attached Unit Test Document**

Select examples, or similar items, from the Unit Test to work through with the students. Then, use the Unit Test in Step 7.

<p>5. Work through the <b>traditional math</b> examples.</p>	<p>Select sample release norm-referenced test items (e.g., SAT, ACT, etc.) to practice concepts in the Unit Test Document's embedded math problems.  (SAT <a href="https://blog.prepscholar.com/printable-satpractice-tests-4-free-official-tests">https://blog.prepscholar.com/printable-satpractice-tests-4-free-official-tests</a> or ACT <a href="https://www.act.org/content/act/en/productsand-services/the-act/test-preparation/mathpractice-test-questions.html?page=0&amp;chapter=0">https://www.act.org/content/act/en/productsand-services/the-act/test-preparation/mathpractice-test-questions.html?page=0&amp;chapter=0</a>)</p>
<p>6. Students <b>demonstrate</b> their understanding.  Students will use my monthly budget and guestimate the expenses in each category.</p>	<p style="text-align: center;"><b>See Attached Document:  Let's GUESTIMATE Ms. D'S Expenses Worksheet</b></p>
<p>7. <b>Formal assessment.</b>  Students take the Budget Unit Test that includes:</p> <ol style="list-style-type: none"> <li>a. Multiple Choice Questions</li> <li>b. Analysis of a prepared budget</li> </ol> <p><i>Source of formal assessments: Work Keys, ACT, SAT, Joliet Junior College Compass Test, Explore Test</i></p>	<p style="text-align: center;"><b>See Attached Document:  Budget Unit Test</b></p>