Personal Financial Literacy for Grade 7 Classrooms

Texas Council on Economic Education

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These lessons are a part of the Texas Council on Economic Education's Smarter Texas program and based on the 2012 Math Personal Financial Literacy Texas Essential Knowledge and Skills

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Grade 7 Classroom Lessons

Lesson Description

Students will investigate a grocery receipt and learn that some items are non-taxable and some are taxable. The students will calculate the sales tax and total amount owed on two receipts, one of which has non-taxable items.

Students will then analyze a paycheck stub, at which time they will learn about deductions, gross pay and net income. They will calculate a basic income tax deduction using a table from the Internal Revenue Service; calculate Social Security tax and Medicare tax using the standard percentage; and calculate other deductions to find the net income. Finally, the students will play a game to practice calculating sales tax and payroll tax.

Texas Essential Knowledge and Skills (Target standards)

- **PFL Math 7.13A:** Calculate the sales tax for a given purchase and calculate income tax for earned wages

Texas Essential Knowledge and Skills (Prerequisite standards)

- **Math 7.1:** Mathematical Process Standards
- **Math 7.3A:** add, subtract, multiply, and divide rational numbers fluently
- **Math 7.3B:** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers
- **Math 7.4D:** solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

National Standards (Supporting standards)

CEE - Council for Economic Education

CCSS - Common Core State Standards

- **CEE Earning Income 8.11:** Social Security is a government program that taxes the income of current workers to provide retirement, disability, and survivor benefits for workers or their dependents.
- **CCSS Math:** Standards for Mathematical Practices
- **CCSS Math 7.RP:** Use proportional relationships to solve percent problems
- **CCSS Math 7.NS:** Apply properties of operations as strategies to multiply and divide rational numbers
- **CCSS Math 7.NS:** Solve real-world and mathematical problems involving the four operations with rational numbers

PFL Terms

- Sales tax
- Income tax
- Gross income
- Net income

Time Required

Three 45-minute class periods

Materials Required

- One copy of **Visual 7.1-1, 7.1-2**, **7.1-3**, **7.1-4, 7.1-5**
- One copy of **Activity 7.1-1** for each student
- One copy of **Activity 7.1-2** for each student and one for a visual

- One copy of **Activity 7.1-3** for each student
- One copy of **Activity 7.1-4a** for each student
- One copy of **Activity 7.1-4b** for teacher
- One calculator per student (optional)

Procedure

Engage

1. Ask: *Have you ever paid taxes? Why do people pay taxes?* ***(Sample answer: Taxes are used to pay for government agencies and services such as police and highways. In Texas most items that consumers purchase have a sales tax.)*** Then tell students that with this lesson, they will learn about two types of taxes: sales tax and payroll tax.

Explore

2. Display **Visual 7.1-1**. Tell students that Mrs. Hawkins went to the grocery store to buy a few items for the weekend. Shown is the grocery receipt Mrs. Hawkins received after making her purchases. Guide the students in understanding the sales receipt using the steps below.

   a. Ask: *What information is provided on the receipt?* ***(Name of grocery store is My Grocery, address of store, date of purchase, time of visit, items purchased, cost of each item, sales tax charged, total cost, cash tender, balance due, number of items sold.)*** Explain that receipts document the transaction type such as credit, debit or cash. "CASH TENDER" is the amount of money paid to the cashier. It also indicates that the transaction type was cash. "Change Due" is the change or the amount of money due back to the customer.

   b. Say: *Look at the items labeled "F" on the receipt. What general term would describe these products?* ***(All items labeled "F" are food items.)*** Explain that most food items in a grocery store require preparation and are therefore non-taxable. Taxable food items include things like snacks and sodas.

   c. Ask students to look at items labeled "T". *What do you notice about these items?* (***All of these items are non-food items except for the chips.)*** *What do you think the "T" represents?* (***"T" identifies items that are taxable.)*** *Why do you think the chips were taxed?* ***(Sample responses: It is a snack. It is a food that is already prepared.)***

Explain

3. Display **Visual 7.1-2**. Discuss with students the definition of sales tax, the rate of tax in Texas and local communities, and how the money is used. Ask students if they can think of other ways the money from sales taxes might be used. *Answers will vary.*

   - A sales tax for the sale of certain goods and services is collected by the seller and given to the government.
   - In Texas, the state sales tax is 6.25%; however, government agencies, such as cities and counties, can add additional taxes to the state amount up to a total of 8.25%.
   - Sales tax is used by the government for public services and programs such as:

     Police
     Fire fighters
     Libraries
     Hospitals
     Prisons
     Highways
     Public transportation

Explore

4. Display **Visual 7.1-1** again. Continue guiding the students in understanding the sales receipt using the steps below.

   a. Instruct students to total the prices for all of the non-taxable items. These are the items labeled "F". ***($8.35)*** Instruct students to total the prices for all of the taxable items. These are the items labeled "T". ***($20.44)***

   b. Explain that the sales tax for this receipt was 8.25%. Have students multiply 8.25% times the taxable total and round to the nearest cent. ***(0.0825 x $20.44 = $1.68)***

   c. Ask: *How is the total calculated for this bill?* ***(Add the total for the prices for all of the food items plus the total for the prices of all the taxable items and the tax.)*** Have the students make these calculations and compare their sums to the total on the receipt. ***(The amounts should be the same.)***

Elaborate

5. Distribute a copy of **Activity 7.1-1** to each student and display **Visual 7.1-3**. Ask a student to read about Ms. Avery. Point out that **Activity 7.1-1** show Ms. Avery's receipts. Read and explain the directions. Then have students work independently or in pairs to determine the missing values on the receipts.

6. Once students have completed the worksheet, allow students to share their results and explain their rationale for their calculations. ***(Sample response: For Dandy Discount, I totaled the taxable items. Then I multiplied this total times 0.0825 to determine the tax. Then I added the prices of the taxable items and the food items plus the tax to calculate the total.)*** Use **Key 7.1-2** as a guide.

Evaluate

7. In pairs, have the students describe the difference between the receipts. ***(The grocery receipt distinguishes between taxable and non-taxable while the department store does not. The department store receipt has a subtotal since all items are taxed and the grocery store does not. Dandy Discount was paid with cash and Modern Fashions was paid with a debit card.)***

8. Ask students why Modern Fashions does not label each item with a "T" or an "F"? ***(Modern Fashions does not sell food items. Therefore all of their items are taxable.)***

Engage

9. Display **Visual 7.1-4**. Tell students that to be able to buy items, they must have a source of income. Julia is in a high school program that allows her to work half a day and go to school half a day. Her first week, she worked 22 hours at $9.75 an hour at a local daycare. How much did she earn? ***($9.75 x 22 = $214.50)*** Julia will deposit $100 from each pay check in her college savings account. She plans to spend the remainder of her first pay check to purchase a $99 camera. However, when Julia received her paycheck, she was surprised at the amount of her check.

10. Display **Visual 7.1-5.** Use this visual to explain the difference between gross pay and net income and to discuss the taxes that are deducted from earnings.

11. Display **Visual 7.1-4** again. Tell students that both Julia's paycheck and pay stub are displayed. Guide the students in understanding the paycheck stub using the following

steps.

a. *What is Julia's gross pay?* ***($214.50)*** Explain that this is the amount Julia earned.

b. *What is Julia's net pay?* **(*$180.81*)** Explain that this is the amount Julia is going to receive after deductions are made.

c. *What happened to the rest of her pay?* ***(Part of the paycheck went to pay income tax, Social Security tax, and Medicare tax.)***

d. *What was the total amount for deductions?* ***($33.69)***

e. *How much will Julia deposit into her college savings?* ***($100)***

f. *Will Julia be able to purchase the camera?* ***(No. If she deposits $100 into her college savings account, she will only have $80.81.)***

g. *Why was the check less than what she expected?* ***(She forgot to consider the taxes that she had to pay.)***

Explore

12. Distribute a copy of **Activity 7.1.2** to each student and display as a visual. Explain to students that income tax is a tax on money people earn (income) which is paid to the government. Our personal income tax is a progressive tax. That means that the more a person earns the higher the tax rate is. The table in **Activity 7.1-2** shows that income tax is a progressive tax. As the amount of income increases, the percent of tax increases.

13. Explain that the amount that will be withheld from an individual's paycheck for federal income taxes is calculated differently based on the individual's financial circumstances. For example, a single parent with 4 children has more allowances or tax breaks than a single person with no children earning the same wages. Some employees are paid weekly, others biweekly, others semi-monthly and some monthly. All of these factors and more are considered when calculating the federal income tax to withhold. In addition, the tables and formulas to calculate income taxes differ from year to year. For our purpose, we will only consider a high school student working part-time. The point of this lesson is to help you, as a student, understand your paycheck and to gain understanding on how to read a tax table. Most high school students, even though they might work part-time, are still dependents of their parents. The calculations we will use are based on the understanding that the employee is living at home and dependent on the parent(s) for food and shelter. Instruct students to complete column 2 on **Activity 7.1-2** as the teacher models. Use the explanation in column 1 of **Activity 7.1-2 or Key 7.1-2** to guide the students. Then have the students complete column 3 independently or in pairs. Use the key provided to go over the answers.

Elaborate

14. Distribute a copy of **Activity 7.1-3** to each student. Ask a student to read the problem. *Manuel Ramos is a high school senior who has a part-time job that pays $10.75 an hour. During a one week period he worked 30 hours. Income tax, Social Security tax of 6.2% of his income, and Medicare tax of 1.45% of his income are deducted from each paycheck.*

15. Have the students answer the questions and use the answers to fill in the paycheck stub and then write the check for Manuel's employer.

16. Display Activity **7.1-3**. Have different students explain 1-6. Use **Key 7.1-3** to guide. As calculations are explained by the students, the teacher should fill in the paycheck stub.

Evaluate

17. Prepare **Activity 7.1-4b** prior to game by cutting out squares and placing them in a bag or box. Distribute a copy of **Activity 7.1-4a** and calculator (optional) to each student. Have students take out a sheet of paper for scratch work and a pencil. Tell students to randomly place nine of the answers listed at the top of the page in the squares on the table.

18. Tell students you are going to draw a tax problem from a bag. They should listen carefully as you read the tax problem. They are then to calculate the answer to the question that is read to them. If that answer is on their TIC TAC Pay the TAX board, they will mark the square with an "X". This game is similar to TIC TAC TOE and can be "won" by getting three "X's" in a row. (For a greater challenge, keep playing till someone has an "X" in each of their nine squares.

Evaluate/End

19. For closure, pose the questions below.
    - ***a.*** What is the difference between paying sales tax and paying income tax? ***(Sample response: The sales tax is paid when purchasing goods and services. The income tax is paid by deducting the tax when income is earned.)***
    - ***b.*** How is sales tax calculated? ***(Multiply the sales tax rate times the total price of the taxable items or cost of service.)***
    - ***c.*** How is income tax calculated***? (Income tax is calculated differently for each employee depending on many factors. A tax table is used. Your employer will make these calculations for you.)***

Visual 7.1-1

My Grocery

1234 Main Street
Anytown, TX
03/14/12 11:38 a.m.

CHIPS	2.98	T
CLOTHES DETERGENT	14.99	T
BREAD	2.79	F
EGGS	1.98	F
MILK	3.58	F
DISHWASHING SOAP	2.47	T
SALES TAX	1.68	
TOTAL	30.47	
CASH TENDER	50.00	
CHANGE	19.53	
NUMBER OF ITEMS SOLD =	6	

THANK YOU FOR SHOPPING WITH US.

Visual 7.1-2 Name _____ Class Period _____

Sales Tax

- A sales tax for the sale of certain goods and services is collected by the seller from the consumer and paid to the government.

- In Texas, the state sales tax is 6.25%; however, local governments, such as cities and counties, can add additional taxes to the state amount up to a total of 8.25%.

- Sales tax is used by the government for public services and programs such as:

Police	Fire fighters
Libraries	Hospitals
Prisons	Highways

Visual 7.1-3

Name _____ Class Period _____

Ms. Avery Goes Shopping

One day Ms. Avery went shopping. Her first trip was to the department store to buy some spring clothes. When she finished buying the clothes, she stopped at the grocery store to buy food and some other items. It started raining when she arrived at her home. As she carried her purchases into her house, her receipts got wet. Some of the amounts were washed out. She remembered she paid for her clothes with her debit card and paid for the groceries with $40 in cash.

Activity 7.1-1 Name _____ Class Period _____

Directions: Help Mrs. Avery find the missing amounts on her receipts. Then answer the question below the table.

Dandy Discount

5555 First Street
Somewhere, TX
04/05/12 1:14p.m.

Tea	3.28	F
Milk	3.59	F
Notebook paper	1.65	T
Magazine	5.59	T
AA Batteries	7.49	T
Frozen vegetables	.99	F
SALES TAX (8.25%)	_____	
TOTAL	_____	
CASH TENDER	40.00	
CHANGE	_____	
Number of items sold	_____	

THANK YOU FOR SHOPPING WITH US.

Modern Fashions

05/01/13
63940 Market Ave.
Styleton, TX

Polo shirt	23.99
Jeans	18.99
Belt	12.59
Khaki shorts	24.99
White shirt	16.99
Sales tax (8.25%)	
Total	
Debit	
Change	0

Best buys for your money!

What are the differences between the two receipts? _____

_____

_____

Key 7.1-1 Name _____ Class Period _____

Directions: Help Mrs. Avery find the missing amounts on her receipts. Then answer the question below the table.

Dandy Discount

5555 First Street
Somewhere, TX
04/05/12 1:14p.m.

Tea	3.28	F
Milk	3.59	F
Notebook paper	1.65	T
Magazine	5.59	T
AA Batteries	7.49	T
Frozen vegetables	.99	F
SALES TAX (8.25%)	1.22	
TOTAL	23.81	
CASH TENDER	40.00	
CHANGE	16.19	
Number of items sold	6	

THANK YOU FOR SHOPPING WITH US

Modern Fashions

05/01/13
63940 Market Ave.
Styleton, TX

Polo shirt	23.99
Jeans	18.99
Belt	12.59
Khaki shorts	24.99
White shirt	16.99
Subtotal	97.55
Sales tax (8.25%)	8.05
Total	105.60
Debit	105.60

Best buys for your money!

What are the differences between the two receipts? (Sample responses: The grocery receipt distinguishes between taxable and non-taxable and the department store does not. The department store receipt has a subtotal since all items are taxed and the grocery store does not. Dandy Discount was paid with cash and Modern Fashions was paid with a debit card.)

Visual 7.1-4

What happened to Julia's earnings?

Julia is in a high school program that allows her to work half a day and go to school half a day. Her first week, she worked 22 hours at $9.75 an hour for a local daycare. How much did she earn?

Unreal Corporations — Check No. 1234
Payroll Account — Date: November 15, 2013

Pay to the order of: Julia Sparkle $180.81

One hundred eighty and 81/100 Dollars

First Corner Bank
Anytown, USA

Memo: Payroll Curtis Void

Detach below before depositing. Save for your records.

Employee: Julia Sparkle			
	Gross Pay		$214.50
	Deductions		
	Federal Income Tax	$17.28	
Pay Period: 11/08/2013 to 11/14/2013	Social Security	$13.30	
	Medicare/Medicaid	$3.11	
	Total Deductions		$33.69
	Net Pay		$180.81

Julia will deposit $100 from each pay check in her college savings account. She plans to spend the remainder of her first pay check to purchase buy a $99 camera. However, when Julia received her paycheck, she was surprised at the amount of her check. *Why was the check less than what she expected?*

Visual 7.1-5

Understanding Your Paycheck

Gross Pay is the amount earned before taxes and deductions are subtracted or withheld.

Net Income is calculated by starting with the gross pay on a paycheck and then subtracting deductions. Deductions include taxes paid to the government, such as Social Security tax, Medicare tax and Income tax and optional deductions including health insurance premiums, donations to charity, and money set aside for savings.

Types of Taxes Withheld from Earnings

a. **Income tax** – money paid to the federal government based on income earned

b. **Social security tax** – this tax will provide retirement, disability, and survivor benefits for workers or their dependents

c. **Medicare tax** – helps pay for many medical services for people 65 years or older

Activity 7.1-2 Name _____ Class Period _____

Percentage Method Tables for Income Tax Withholding for Weekly Pay Period

(For Wages Paid in 2013)

(a) SINGLE person (including head of household)—

If the amount of wages (after subtracting withholding allowances) is:		The amount of income tax to withhold is:	
Not over $42		$0	
Over—	**But not over—**		**of excess over—**
$42	—$214 . .	$0.00 plus 10%	—$42
$214	—$739 . .	$17.20 plus 15%	—$214
$739	—$1,732 . .	$95.95 plus 25%	—$739
$1,732	—$3,566 . .	$344.20 plus 28%	—$1,732
$3,566	—$7,703 . .	$857.72 plus 33%	—$3,566
$7,703	—$7,735 . .	$2,222.93 plus 35%	—$7,703
$7,735		$2,234.13 plus 39.6%	—$7,735

Source: Notice 1036 (Rev. January 2013, Department of the Treasury, Internal Revenue Service.)

	Steps:	**Example:**	**Your Problem:**
Step 1:	Determine the correct table to use based on individual basis.	The table for this situation is for a single person, who gets paid weekly in 2013.	The table for this situation is for a single person, who gets paid weekly in 2013.
Step 2:	Determine your gross weekly pay.	15 hours at $9.00 per hour	22 hours at $10 per hour
Step 3:	Find the row that contains the range for the gross income in the table.		
Step 4:	Use corresponding row to find "of excess over—" amount. This is the number under the heading "of excess over—"		
Step 5:	Subtract the number in step 4 from your weekly pay.		
Step 6:	Find the formula in the middle column of the corresponding row and Calculate the withholding tax.		

Key 7.1-2 Name _____ Class Period _____

Percentage Method Tables for Income Tax Withholding for Weekly Pay Period

(For Wages Paid in 2013)

(a) SINGLE person (including head of household)—

If the amount of wages (after subtracting withholding allowances) is:		The amount of income tax to withhold is:	
Not over $42		$0	
Over—	**But not over—**		**of excess over—**
$42	—$214 . .	$0.00 plus 10%	—$42
$214	—$739 . .	$17.20 plus 15%	—$214
$739	—$1,732 . .	$95.95 plus 25%	—$739
$1,732	—$3,566 . .	$344.20 plus 28%	—$1,732
$3,566	—$7,703 . .	$857.72 plus 33%	—$3,566
$7,703	—$7,735 . .	$2,222.93 plus 35%	—$7,703
$7,735		$2,234.13 plus 39.6%	—$7,735

Source: Notice 1036 (Rev. January 2013, Department of the Treasury, Internal Revenue Service.)

	Steps:	**Example:**	**Your Problem:**
Step 1:	Determine the correct table to use based on individual basis.	The table for this situation is for a single person, who gets paid weekly in 2013.	The table for this situation is for a single person, who gets paid weekly in 2013.
Step 2:	Determine your gross weekly pay.	15 hours at $9.00 per hour **15 x $9.00 = $135**	22 hours at $10 per hour **22 x 10 = $220**
Step 3:	Find the row that contains the range for the gross income in the table.	**Row 1: Since $135 is over $42, but not over $214**	**Row 2: Since $220 is over $214, but not over $739**
Step 4:	Use corresponding row to find "of excess over—" amount. This is the number under the heading "of excess over—"	**$42**	**$214**
Step 5:	Subtract the number in step 4 from your weekly pay.	**$135 – $42 = $93**	**$220 - $214 = $6**
Step 6:	Find the formula in the middle column of the corresponding row and Calculate the withholding tax.	**$0.00 plus 10%** **$0.00 + .10 x $93 = $9.30**	**$17.20 plus 15%** **$17.20 + .15 x $6 = $18.10**

Activity 7.1-3

Name _____ Class Period _____

Manuel Ramos is a high school senior who has a part-time job that pays $10.75 an hour. During a one week period he worked 30 hours. Income tax, Social Security tax, and Medicare tax are deducted from each paycheck. Fill in the paycheck and check stub below for his employer.

Directions: Use the following questions to complete the check stub for Manuel. Round all answers to the nearest cent.

1. What was Manuel's gross income for the one week? _____

2. Use the income tax table from **Activity 7.1-2** to calculate Manuel's income tax.

   _____

3. Calculate the Social Security tax at 6.2% of Manuel's gross pay. _____

4. Calculate the Medicare tax at 1.45% of Manuel's gross pay. _____

5. What are Manuel's total deductions? _____

6. How much is Manuel's net pay? _____

7. Complete the check stub and write the check to Manuel Ramos for his net pay.

Unreal Corporations Payroll Account		Check No. 5555 Date:	
Pay to the order of:			
First Corner Bank Anytown, USA			
Memo: Payroll		Vladity Notworthy	
Detach below before depositing. Save for your records.			
Employee: Manuel Ramos Pay Period: 07/08/2013 to 07/14/2013	Gross Earnings		
	Deductions:		
	Federal Income Tax		
	Social Security Tax		
	Medicare Tax		
	Total deductions		
	Net Pay		

Key 7.1-3 Name _____ Class Period _____

Manuel Ramos is a high school senior who has a part-time job that pays $10.75 an hour. During a one week period he worked 30 hours. Income tax, Social Security tax, and Medicare tax are deducted from each paycheck. Fill in the paycheck and check stub below for his employer.

Directions: Use the following questions to complete the check stub for Manuel. Round all answers to the nearest cent.

1. What was Manuel's gross income for one week? $10.75 x 30 = $322.50

2. Use the income tax table from **Activity 7.1-4** to calculate Manuel's income tax. $322.50 - $214 = $108.50; $17.20 + (0.15 x $108.50) = $33.475 which rounds to $33.48.

3. Calculate the Social Security tax at 6.2% of Manuel's gross pay. 0.062 x $322.50 = $19.995 which rounds to $20.00.

4. Calculate the Medicare tax at 1.45% of Manuel's gross pay. 0.0145 x $322.50 = $4.67625 which rounds to $4.68.

5. What are Manuel's total deductions? Income tax + Social Security tax + Medicare tax = $33.48 + $20.00 + $4.68 = $58.16

6. How much is Manuel's net pay? $322.50 - $58.16 = $264.34

7. Complete the check stub and write the check to Manuel Ramos for his net pay.

Unreal Corporations
Payroll Account

Check No. 5555
Date: July 15, 2013

Pay to the order of: Manuel Ramos $264.34

Two hundred sixty-four 34/100 Dollars

First Corner Bank
Anytown, USA

Memo: Payroll Vladity Notworthy

Detach below before depositing. Save for your records.

Employee: Manuel Ramos	Gross Earnings		$322.50
	Deductions:		
	Federal Income Tax	$33.48	
Pay Period: 07/08/2013 to 07/14/2013	Social Security Tax	$20.00	
	Medicare Tax	$4.68	
	Total deductions		$58.16
	Net Pay		$264.34

Activity 7.1-4a Name _____ Class Period _____

Directions: Select nine of the numbers from the list below to put randomly in the squares on the TIC TAC Pay the TAX board. Work the problems as your teacher reads them. If you have the answer, then draw an "X" through the square with that number.

$0.49	$1.62	$1.94	$7.25	$26.66	$19.43
$0.84	$17.99	$5.99	$31.62	$22.32	$5.58
$1.02	$49.85	$9.10	$18.75	$5.37	$6.61

TIC TAC Pay the TAX

Activity 7.1-4b

TIC TAC Pay the TAX Cards

Cut the following problems apart, fold them and put them in a bag to be drawn out for the TIC TAC Pay the TAX game. The answer is in parenthesis after the problem.

Alex purchased a hamburger combo advertised at $5.99. If the sales tax is 8.25%, how much tax will he pay? ($0.49)	Alexis purchased a new music CD for $11.99. If the sales tax rate is 7%, how much did she pay in sales tax? ($0.84)	Jane worked for 10 hours on the weekend. She was paid $7.00 per hour. How much Medicare tax was withheld from her paycheck if the tax rate is 1.45%? ($1.02)
While visiting his grandmother, Lex ruined his jeans and had to purchase new ones. He paid $24.99 for the jeans. If the sales tax is 6.5%, how much sales tax did Lex pay? ($1.62)	Huyen went to the grocery store for her mother to buy milk, butter, bread, and cereal. Her bill was $17.99. If the sales tax rate is 8.25%, how much did she pay at the checkout, including tax? (Food is not taxable. $17.99)	A social worker's weekly wage is $804. How much Social Security tax was withheld from her check if the tax rate is 6.2% ($49.85)
Jess needs a backpack for his hiking trip. The backpack cost $24.99. The tax rate in his town of La Porte, TX is 7.75%. How much sales tax did Jess pay? ($1.94)	Ronnie purchased a bag of apples for $5.99. If the tax rate is 8.25%, how much did he pay at the checkout? (Food is not taxable. His bill was $5.99)	Maria received a new camera for her birthday. Her parents paid $129.99 for the camera plus 7% tax. How much sales tax did her parents pay? ($9.10)

Beverly worked as a part time librarian. Last week she earned $500.00. How much Medicare tax was withheld from her paycheck if the tax rate is 1.45%? ($7.25)	Alma is a hairdresser. This week she earned $510. How much Social Security tax was withheld from her check if the tax rate is 6.2% ($31.62)	Lisa saved to purchase a new iPad. The iPad costs $300. If she has to pay 6.25% sales tax, how much more money does she need to pay the tax? (18.75)
Yao worked as a photographer. Last weekend he earned $430 taking pictures of a party. How much Social Security tax was withheld from his check if the tax rate is 6.2% ($26.66)	Kate worked at the day care center. She worked 40 hours last week and earned $9 an hour. How much Social Security tax was withheld from her check if the tax rate is 6.2% ($22.32)	At the grocery store, Tamalia purchased 3 bell peppers at $1.25 each and a roll of paper towels for $1.50. If the tax rate is 8.25%, what was her total bill? ($5.37)
Nathan bought a new DVD at the electronics store. It cost $17.99. If the sales tax rate is 8%, what is his total bill? ($19.43)	Gary worked at a fast food place for $9.00 per hour. Last weekend he worked 10 hours. How much social security will be deducted from his paycheck, if the rate is 6.2%? ($5.58)	At the grocery store, Harry purchased 1 loaf of bread for $1.99 and a box of garbage bags for $4.29. If the tax rate is 7.75%, what was his total bill? ($6.61)

Lesson Description

This lesson builds on Grade 7, Lesson 1. Students will calculate net income and categorize expenses to create a budget. Percentages for each category will be calculated and analyzed.

For the second part, students will analyze a budget and identify variable and fixed expenses. They will then use this understanding to balance a budget. Students will make spending decisions to ensure that the expenses do not exceed the income.

Finally, students will use Texas Reality Check to develop their anticipated future budget. Based on their decisions, they will be given a budget and a target salary that will provide for this lifestyle they have chosen. They will then explore occupations that will provide the target salary.

Texas Essential Knowledge and Skills (Target standards)

- **PFL Math 7.13B** identify the components of a personal budget, including income, planned savings for college, retirement, and emergencies; taxes; and fixed and variable expenses and calculate what percentage each category comprises of the total budget

Texas Essential Knowledge and Skills (Prerequisite standards)

- **Math 7.1:** Mathematical Process Standards
- **Math 7.3A:** add, subtract, multiply, and divide rational numbers fluently
- **Math 7.3B:** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers
- **Math 7.4D:** solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

National Standards (Supporting standards)

CEE - Council for Economic Education

CCSS - Common Core State Standards

- **CEE Buying Goods and Services 8.5:** A budget includes fixed and variable expenses, as well as income, saving, and taxes.
- **CEE Buying Goods and Services 8.6:** People may revise their budget based on unplanned expenses and changes in income.

- **CCSS Math:** Standards for Mathematical Practices
- **CCSS Math 7.RP:** Use proportional relationships to solve percent problems
- **CCSS Math 7.NS:** Apply properties of operations as strategies to multiply and divide rational numbers
- **CCSS Math 7.NS:** Solve real-world and mathematical problems involving the four operations with rational numbers

PFL Terms

- Budget
- Gross pay
- Net income
- Fixed expenses
- Variable expenses

Time Required

Two 45-minute class periods

Materials Required

- A copy of **Activity 7.2-1** for each student
- A copy of **Activity 7.2-2** for each student
- A copy of **Activity 7.2-3** for each student
- 1 sheet of chart paper per group
- 2-3 markers per group
- A computer with access to the Internet for each student

Procedure

Engage

1. Write the following words on the board: income and expenses. Ask what is income? ***(Money received for doing a job or profit earned from a business.)*** What are expenses***? (Money that you have to pay out.)***

2. Add the word "budget" to the board. Ask students to write a sentence using the three terms. After 1 minute, have them share their sentence with a neighbor. Direct each student to adjust his/her sentence if needed and then share the adjusted sentence with a different partner. Students should adjust the sentence again if needed. Next, have a few students share their final version their sentences. Write these on the board. ***(Sample sentences: A budget is a plan to manage income and expenses. Stacie budgets so that expenses do not exceed income.)*** Point out that the word "budget" can be a noun such as in the first sentence. In this case, it is a plan that shows how the income will be distributed. In the second sentence, it is used as a verb to describe what will be done with the income and expenses.

Explore

3. Distribute **Activity 7.2-1** to each student. Group students with two or three other students. Explain that a budget is a tool that helps people manage their money and plan for the future. Today they will help Wilma create a monthly budget. Wilma has been working full-time for 3 months. She knows the importance of keeping financial records. Therefore she decides to begin by creating a monthly budget.

4. Direct students' attention to part 1. Ask them to calculate Wilma's net monthly income by following the steps on part 1. Then, go over the process by asking the questions below.

   a. *Calculate Wilma's total deductions by adding the federal taxes and her medical premium. Enter this number in the last column for Total Deductions on his paycheck stub.* ***($289.90 + $119.66 + $27.99 + $100.00 = $537.55)***

   b. *Subtract Wilma's Total Deductions from his Gross Pay. Enter this number in the last column for Net Pay on her paycheck stub.* ***($1930.00 - $537.55 = $1392.45)***

   c. *Wilma receives a semi-monthly paycheck. What does this mean?* ***(He gets paid twice a month.)***

   d. *How much money will Wilma bring home monthly?* ***($2784.90)*** Explain that a budget can be calculated by the day, week, month, or year. Since Wilma is creating a monthly budget, students need to consider how much income Wilma earns every month and how much she spends every month.

5. The remainder of the activity is self-guided. Have students follow the steps on **Activity 7.2-1**. The teacher should monitor groups. A key has been provided.

Explain

6. Once students have completed this activity, use the questions on the worksheet to lead a class discussion.

   a. Does Wilma spend more than she makes? Explain. No. Wilma's monthly net income is $2784.90 and her expenses are also $2784.00.

   b. What percent of Wilma's monthly net income is housing? 32%

   c. What percent of Wilma's monthly net income is transportation? 19%

   d. Why is the medical insurance premium not included in this budget? In Wilma's case, it is listed as a deduction. This means that it is paid before calculating his net income.

   e. What is the total of Wilma's taxes for one month? 2($289.90 + $119.66 + $27.99) = $875.10

   f. What percent of Wilma's monthly gross income are taxes? $875.10/$3860 = 23%

   g. Why did Wilma not include a category for taxes in his budget? The taxes were not part of his net income.

Elaborate

7. Distribute **Activity 7.2-2** to each student. Keep students in small groups. Explain that there are many reasons for creating a budget. Consider that your budget is calculated for a monthly net income of $4200. If you are laid off and find a new job that only pays $3800, you can use your existing budget to decide what expenses can be reduced.

8. Read the introduction on **Activity 7.2-2** to the students.

   Wilma's friend, Betty, is still in college. She is determined not to get a loan to pay for tuition and books. Therefore she lives at home and works part-time. She knows that if she can save $300 every month, she will have enough money to pay for next semester's college tuition and books. Every month Betty spends more money than she makes. Her father has been giving her money when she overspends. He has explained that he will no longer bail her out.

   Wilma has agreed to help Betty balance her budget. First, Wilma asked her to gather all of her receipts for the month of August and enter the cost in the budget worksheet below.

9. Instruct the students to calculate Betty's expenses. Then answer questions a - c.

   a. How much does Betty have available to spend each month? ***($850)***

   b. How much did Betty spend in August? ***($1035)***

c. How much does Betty need to cut back each month? ***($185)***

10. Write "Fixed Expenses" and "Variable Expenses" on the board. Draw a line between the two terms. Have students read (d) the definition of a fixed expense. **Fixed expenses** are those expenses that remain the same each month. Ask students to write on their worksheet two examples of expenses that are fixed. After 1 minute, have students share their examples with their group. Then have one student from each group write one example on the board in the Fixed Expenses column. ***(Sample: rent, car payment, cell phone)*** For each item listed on the board, ask: *Will the cost for this item be the same every month?* Some items may be debatable. The class will need to come to a compromise. For example, a cell phone service bill may be fixed for those consumers who have unlimited text and unlimited calls or for those consumers who never exceed their limits. For those consumers who have limits and often exceed those limits, the cell phone service fee will vary. For some families, a savings account is fixed because they use the "Pay yourself first" method. This means that they first deposit a fixed amount into a savings and then stretch the remainder of their income to cover other expenses. Others will pay their expenses first. The remaining balance will be deposited into a savings. This deposit will vary month to month or paycheck to paycheck.

11. Have the students read (e) the definition of a variable expense. **Variable expenses** are those expenses that vary from month to month. Ask students to write two examples of expenses that vary from month to month on their activity sheet. After one minute, have students share their examples with their group. Then have one student from each group, write one example on the board in the Variable Expenses column. **Sample: food, utilities, entertainment, clothes** Once again, some items may be debatable. Go over each item and discuss the circumstances where the expense is a variable expense and circumstances where it might be considered a fixed expense.

12. Then have students read (f) and complete task.

Since Betty will need to make adjustments to her budget, Wilma will have her identify in column 1 if the item is a fixed expense or a variable expense. In column 1, write "F" for fixed expense and "V" for variable expense.

13. Explain to student that each group will need to decide if the item is a fixed or variable expense. Some groups may differ when identifying the expense. The teacher should circulate and ask groups to explain how they made their decision on various expenses.

14. The remainder of the activity is self-guided. Allow groups to complete the remainder of the activity.

15. Distribute chart paper and markers to each group. After students have completed the activity, have students write their plan for Betty's budget on chart paper. Have one member from each group explain how they adjusted Betty's budget. Ask students how they know the budget is balanced? ***(The total expenses should equal $850 which is the same as Betty's net income.)***

Elaborate

16. Take the students to a computer lab with Internet access. Distribute **Activity 7.2-3** to

each student. Say: *Now it is time for you to take a reality check. Have you thought about your future? What will your budget look like? What type of an occupation do you need to afford this budget? The following simulation will help you make these decisions.*

17. Have the students follow the directions on **Activity 7.2-3.** When they have completed the activity, have them share with a partner their future budget; what salary they will need to live the lifestyle to pay for the expenses on the budget; and an occupation that will pay this salary.

Evaluate/End

18. For closure pose the following questions.

- What is net income***? (The amount of money you receive for work after deductions are subtracted.)***
- What are fixed expenses? ***(Expenses that are the same week to week or month to month.)***
- What are variable expenses? ***(Expenses that vary week to week or month to month.)***
- What is the purpose of a budget? ***(To help someone plan for their spending and saving.)***

Activity 7.2-1 Name _____ Class Period _____

Directions: Read the steps for creating a monthly budget below. Then help Wilma create a budget by filling in the missing information.

Wilma has been working full-time for 3 months. She knows the importance of keeping financial records. Therefore, she decides to begin by creating a budget.

Step 1: Calculate the monthly net income.

Below is Wilma's semi-monthly paycheck stub.

Employee: Wilma Smith Pay Period: 09/01/2013 to 09/13/2013	Gross Pay		$1930.00
	Deductions:		
	Federal Income Tax	$289.90	
	Social Security Tax	$119.66	
	Medicare Tax	$27.99	
	Medical Premium	$100.00	
	Total Deductions		
	Net Income		

a. Calculate Wilma's total deductions by adding the federal taxes and his medical premium. Enter this number in the last column for Total Deductions on her paycheck stub.

b. Subtract Wilma's Total Deductions from his Gross Pay. Enter this number in the last column for Net Pay on her paycheck stub.

c. Wilma receives a semi-monthly paycheck. What does this mean? _____

d. What is Wilma's monthly net income? _____

Step 2: Categorize monthly expenses.

Listed below are Wilma's monthly expenses.

House payment $900	Electricity $122
Clothes $120	Retirement Savings $150
Car payment $240	Gasoline and car maintenance $170
Entertainment $200	Cell phones $89
Emergency savings $100	Water and gas $52
Restaurants $175	Groceries $275
Car insurance $120	Miscellaneous $71

List her expenses under the appropriate category and find the total amount for that category.

Housing	Amount	Food	Amount	Utilities	Amount
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Total	_____	Total	_____	Total	_____

Savings	Amount	Transportation	Amount	Other	Amount
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Total	_____	Total	_____	Total	_____

Step 3: List categories and their total in the budget worksheet.

Using the information above, complete the budget sheet below. Round each percent to the nearest whole number.

Monthly Budget Worksheet Monthly Net Income:		
Expenses	Cost	Percentage of Monthly Net Income
Housing:		
Food:		
Utilities:		
Savings:		
Transportation:		
Other:		
Total Expenses:		

a. Does Wilma spend more than she makes? Explain. _____

b. What percent of Wilma's monthly net income is housing? _____

c. What percent of Wilma's monthly net income is transportation? _____

d. Why is the medical insurance premium not included in this budget? _____

e. What is the total of Wilma's taxes for one month? _____

f. What percent of Wilma's monthly gross pay are taxes? _____

g. Why did Wilma not include a category for taxes in her budget? _____

_____

Key 7.2-1 Name _____ Class Period _____

Directions: Read the steps for creating a monthly budget below. Then help Wilma create a budget by filling in the missing information.

Wilma has been working full-time for 3 months. She knows the importance of keeping financial records. Therefore, she decides to begin by creating a budget.

Step 1: Calculate the monthly net income.

Below is Wilma's semi-monthly paycheck stub.

Employee: Wilma Smith Pay Period: July 2013	Gross Pay		$1930.00
	Deductions:		
	Federal Income Tax	$289.90	
	Social Security Tax	$119.66	
	Medicare Tax	$27.99	
	Medical Premium	$100.00	
	Total Deductions		**$537.55**
	Net Income		**$1392.45**

a. Calculate Wilma's total deductions by adding the federal taxes and her medical premium. Enter this number in the last column for Total Deductions on her paycheck stub.
$289.90 + $119.66 + $27.99 + $100.00 = $537.55

b. Subtract Wilma's Total Deductions from her Gross Pay. Enter this number in the last column for Net Pay on her paycheck stub**. $1930.00 - $537.55 = $1392.45**

c. Wilma receives a semi-monthly paycheck. What does this mean? **He gets paid twice a month.**

d. How much money will Wilma bring home monthly? **$2784.90**

Step 2: Categorize monthly expenses.

Listed below are Wilma's monthly expenses.

House payment $900	Electricity $122
Clothes $120	Retirement Savings $150
Car payment $240	Gasoline and car maintenance $170
Entertainment $200	Cell phone $89
Emergency savings $100	Water and gas $52
Restaurants $175	Groceries $275
Car insurance $120	Miscellaneous $71

List her expenses under the appropriate category and find the total amount for that category.

Housing	Amount	Food	Amount	Utilities	Amount
House payment	$900	Restaurants	$175	Electricity	$122
		Groceries	$275	Water and gas	$52
Total	$900	Total	$450	Total	$174

Savings	Amount	Transportation	Amount	Other	Amount
Retirement	$150	Car payment	$240	Clothes	$120
Emergency	$100	Car insurance	$120	Entertainment	$200
		Gas and main.	$170	Cell phone	$89
				Misc.	$71
Total	$250	Total	$530	Total	$480

Step 3: List categories and their total in budget worksheet.

Using the information above, complete the budget sheet below. Round each percent to the nearest whole number.

Monthly Budget Worksheet Monthly Net Income: $2784.90		
Expenses	Cost	Percentage of Net Income
Housing:	$900	32%
Food:	$450	16%
Utilities:	$174	6%
Savings:	$250	9%
Transportation:	$530	19%
Other:	$480	17%
Total Expenses:	$2784	99%

a. Does Wilma spend more than ehe makes? Explain. **No. Wilma's monthly net income is $2784.90 and her expenses are $2784.00.**

b. What percent of Wilma's monthly net income is housing? **32%**

c. What percent of Wilma's monthly net income is transportation? **19%**

d. Why is the medical insurance premium not included in this budget? **In Wilma's case, it is listed as a deduction. This means that it is paid before calculating his net income.**

e. What is the total of Wilma's taxes for one month? **2($289.90 + $119.66 + $27.99) = $875.10**

f. What percent of Wilma's monthly gross pay are taxes? **$875.10÷ $3860 = 23%**

g. Why did Wilma not include a category for taxes in her budget? **The taxes were not part of his net income.**

Activity 7.2-2 Name _____ Class Period _____

Wilma's friend, Betty, is still in college. She is determined not to get a loan to pay for tuition and books. Therefore, she lives at home and works part-time. She knows that if she can save $300 every month, she will have enough money to pay for next semester's college tuition and books. Every month Betty spends more money than she makes. Her father has been giving her money when she overspends. He has explained that he will no longer bail her out.

Wilma has agreed to help Betty balance her budget. First, Wilma asked her to gather all of her receipts for the month of August and enter the cost in the budget worksheet below.

	Monthly Budget Worksheet Monthly Net Income: $850.00		
Fixed or Variable?	**August Expenses**	**Actual Expenditures**	**Monthly Budget**
	Rent to her parents:	$50	
	Food:	$250	
	Cell phone:	$90	
	Savings:	$300	
	Transportation: ($1 round trip each school day)	$20	
	Manicure:	$40	
	Beauty Shop:	$50	
	Entertainment:	$75	
	Clothes:	$75	
	Morning coffee at The Coffee Place:	$85	
	Total Expenses:		

a. How much does Betty have available to spend each month? _____

b. How much did Betty spend in August? _____

c. How much does Betty need to cut back each month? _____

d. **Fixed expenses** are those expenses that remain the same each month. Give two examples of expenses that are fixed. _____

e. **Variable expenses** are those expenses that vary from month to month. Give two examples of expenses that vary from month to month. _____

f. Since Betty will need to make adjustments to her budget, Wilma will have her identify in column 1 if the item is a fixed expense or a variable expense. In column 1, write "F" for fixed expense and "V" for variable expense.

g. Which type of the expenses can be adjusted? _____

h. Since the fixed expenses cannot be adjusted, transfer these cost to column 4.

i. Decide which variable expenses can be reduced. Then, adjust Betty's expenses in column 4 so that the net income = expenses. This is Betty's new budget!

j. Which expenses did you decide to adjust? Explain why you made these choices.

Key 7.2-2 Name _____ Class Period _____

Wilma's friend, Betty, is still in college. She is determined not to get a loan to pay for tuition and books. Therefore, she lives at home and works part-time. She knows that if she can save $300 every month, she will have enough money to pay for next semester's college tuition and books. Every month Betty spends more money than she makes. Her father has been giving her money when she overspends. He has explained that he will no longer bail her out.

Wilma has agreed to help Betty balance her budget. First, Wilma asked her to gather all of her receipts for the month of August and enter the cost in the budget worksheet below.

	Monthly Budget Worksheet Net Income: $850.00		
Fixed or Variable?	**August Expenses**	**Actual Expenditures**	**Sample Monthly Budget**
F	Rent to her parents:	$50	$50
V	Food:	$250	$150
*	Cell phone:	$90	$90
F**	Savings:	$300	$300
*	Transportation: ($1 round trip each school day)	$20	$20
V	Manicure:	$40	$0
V	Beauty Shop:	$50	$30
V	Entertainment:	$75	$75
V	Clothes:	$75	$75
V	Morning coffee at The Coffee Place:	$85	$10
	Total Expenses:	$1035	$850

These items could be variable expenses or fixed expenses. Require students to provide a justification for their selection.

****In Betty's case, she has specified that she will save $300 per month. Therefore, this will be a fixed expense.***

a. How much does Betty have available to spend each month? **$850**

b. How much did Betty spend in August? **$1035**

c. How much does Betty need to cut back each month? **$185**

d. **Fixed expenses** are those expenses that remain the same each month. Give two examples of expenses that are fixed. **Sample: rent, car payment, cell phone**

e. **Variable expenses** are those expenses that vary from month to month. Give two examples of expenses that vary from month to month. **Sample: food, utilities, entertainment, clothes**

f. Since Betty will need to make adjustments to her budget, Wilma will have her identify in column 1 if the item is a fixed expense or a variable expense. In column 1, write "F" for fixed expense and "V" for variable expense. **See table for sample answers.**

g. Which type of the expenses can be adjusted? **Variable expenses**

h. Since the fixed expenses cannot be adjusted, transfer these costs to column 4. **See table.**

i. Decide which variable expenses can be reduced. Then, adjust the Betty's expenses in column 4 so that the net income = expenses. This is Betty's new budget! **See table for sample.**

j. Which expenses did you decide to adjust? Explain why you made these choices. **Sample response: Food has been reduced by $100. Betty should take her lunch to school and eat out less. The manicure has been deleted. Betty can fix her own nails. The beauty shop has been reduced to $30. Betty can find a more affordable place to cut her hair. Coffee expense has been reduced to $10. Betty can make coffee at home.**

Activity 7.2-3 Name _____ Class Period _____

Texas Reality Check

Now it is time for you to take a reality check. Have you thought about your future? What will your budget look like? What type of an occupation do you need to afford this budget? The following simulation will help you make these decisions.

1. Go to the following website: http://www.texasrealitycheck.com
2. Choose **1 Reality Check** by clicking on the red arrow.
3. Choose the city where you would like to live, then choose your expenses.
4. Once you have completed the first phase, Texas Reality Check will create your budget. Fill in your Texas Reality Check budget below.

Your Monthly Expenses	City:
Housing	
Utilities	
Food	
Transportation	
Clothes	
Health Care	
Personal	
Entertainment	
Misc	
Savings	
Student Debt Loan	
Monthly Expenses	
Annual Expenses	
Taxes (25% of Annual Expenses)	
Annual Salary Needed	

5. What occupation will give you the annual salary you need? Follow the **Find Careers** by clicking on the blue arrow to get information about what occupations will pay the annual salary you need.

Occupation: _____Annual Salary: _____

What type of training is required for this occupation? _____

Use the space below to write important information about this occupation.

Lesson Description

Students will learn how to use an online family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby. Students will review categories for family budgets and categorize them as negotiable or non-negotiable. Using a Think-Pair-Share activity, students will consider how family circumstances and outside influences may affect the budget amount for each category. Finally, the students will use an online family budget estimator, to compare the cost of living in different metro areas.

Texas Essential Knowledge and Skills (Target standards)

- **PFL Math 7.13D:** use a family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby

Texas Essential Knowledge and Skills (Prerequisite standards)

- **Math 7.1:** Mathematical Process Standards

National Standards (Supporting standards)

- **CEE Buying Goods and Services 8.5:** A budget includes fixed and variable expenses, as well as income, saving, and taxes.
- **CEE Buying Goods and Services 8.6:** People may revise their budget based on unplanned expenses and changes in income.
- **CCSS Math:** Standards for Mathematical Practices

CEE - Council for Economic Education

CCSS - Common Core State Standards

PFL Terms

- Budget
- Expenses
- Savings

Time Required

One 45-minute class period

Materials Required

- A copy of **Activity 7.3-1** for each student
- A copy of **Activity 7.3-2** for each student
- A computer and Internet connection for each student
- A soft ball (or rolled up piece of paper)

Procedure

Engage

1. Ask students: *What is a budget?* ***(A budget is a tool that helps people manage their money and plan for the future.)*** *What are the benefits of setting and sticking to a budget?* ***(By setting and sticking to a budget, you can better manage your cash flow.)***

2. Instruct students to complete a Chalkboard Splash by recording categories for family budgets on the chalkboard. (In a Chalkboard Splash, all students record their responses onto a chalkboard or whiteboard. After recording their responses, students are asked to analyze peer responses for three things: similarities, differences and surprises.) Provide the class with 5 – 10 writing utensils for the board (chalk or markers) and give the class 5 minutes to brainstorm categories that may appear within a family's budget. As they are able to provide additional ideas to the brainstorm, students are allowed to take a writing utensil, contribute to the Chalkboard Splash, and then return the writing utensil for other students to use. Possible categories include: Housing, Food, Transportation, Savings, and Entertainment.

3. Debrief by asking students to look at the board and identify similarities amongst the responses. Then, ask for volunteers to identify the categories most important for survival.

Explore/Explain

4. Ask students: *When considering a family's basic needs, what categories of expenditures within a budget are non-negotiable? Consider the categories from the Engage activity, sorting them as negotiable and non-negotiable.* ***(Non-negotiable budget categories include: Housing, Food, Child Care, Medical, Transportation, Taxes)*** During the discussion, you may have to guide students to discern resources essential for survival as opposed to essential for a job. Help them answer the question, is there an alternative that yields the same result, but at a lower price? For example, if all necessary places to travel (food store, job, etc.) are within the means of public transportation, then a bus pass would be more economical than purchasing a car. Some resources are explicitly dependent upon the situation. For example, if you work at home and communicate with your employer via the World Wide Web, then it is essential for your job to have Internet access at home. However, it is not essential for survival for you to have Internet access at home, since you could possibly pursue another job that does not require working from home.

5. Pose the following question and have the students complete a Think-Pair-Share: *What influences may cause variations in the budget amounts for each of these non-negotiable categories? That is, why might some families budget more or less for housing or food, for example, than another family?* Instruct students to spend about 3 minutes thinking independently of reasons the budget amounts may vary. Then, students work with a partner for about 3 minutes to compile their lists of ideas. Finally, the class shares thoughts about influences that may cause variations in the budget amounts for the previously identified non-negotiable categories. ***(Location, Number of working adults, Number of children, Age of children, Healthcare necessities, Type of transportation)***

Elaborate

6. Distribute **Activity 7.3-1** to each student. Display **Activity 7.3-1** as a visual.

7. Tell students to use the map to identify the city in which they live (or another nearby city) listed as one of the 26 Texas metro areas. Next, select another metro area, to be used for comparison. Then, select from the categories listed on the activity sheet to create a scenario to use on the following activities. This information can be used to determine the minimum household budget and average hourly wage to make ends meet in a given metro area.

8. Discuss health insurance premiums by telling students that insurance companies charge consumers premiums to participate in their coverage. That is, consumers pay health insurance companies a certain amount of money each month just in case they, or their doctors, have to file for reimbursement for a medical procedure. The premiums ensure they have coverage and won't have to pay the full amount out of pocket charged by doctors. Ask students what would happen if they had a medical emergency and had not been paying health insurance premiums? ***(Without health insurance, the family would have to pay the full amount to the doctor or hospital. This may possibly deplete their emergency savings or even put the family into debt.)***

9. Instruct the students to go to The Center for Public Policy Priorities, Family Budgets website: http://www.familybudgets.org.

10. Tell students to use the scenario they created on **Activity 7.3-1** and the Texas metro area that best describes their city to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs.

11. Distribute **Activity 7.3-2** to each student. Display **Activity 7.3-2** as a visual.

12. Tell students: *Record the information for your city or metro area in the space labeled Texas metro area #1, including a circle graph, illustrating the details of the monthly budget.*

13. Tell students: *Now, go to The Center for Public Policy Priorities, Family Budgets website: http://www.familybudgets.org again and use the same scenario you created on **Activity 7.3-1**, with a different Texas metro area.*

14. Tell students: *Record the information for this second city or metro area in the space labeled Texas metro area #2, including a circle graph, illustrating the details of the monthly budget.*

Evaluate

15. Take students to an area with space for a ball toss. Use a soft ball (or rolled up ball of paper) for a ball toss discussion about the Texas metro areas selected by the students and the differences in the hourly wage needed to get by and the specifics of the family budgets. Toss the ball to the first student and ask him/her to report the name of the city or metro area chosen, one surprising piece of information discovered, and why the student feels the values generated were higher or lower than their own city or metro area. Allow this student to toss the ball to another student for more input into the discussion and repeat until everyone has shared. ***(Sample responses: access to public transportation allows for a lesser transportation budget)*** For the next toss, ask how this information help a family? ***(Sample responses: The family can determine how much***

money they will need to provide the basic needs for their family. The family can determine which metro area is the most affordable.)

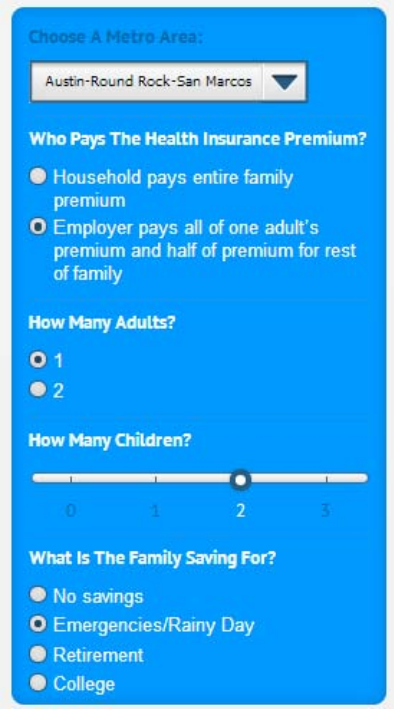
Elaborate

16. Have students return to their computer. Tell them that their good friend has come to them for advice. Read the following.

    Your friend is a single mother of two. She knows that she should have an emergency savings but with her current income, she is barely able to provide the basic needs for her family. Therefore, she has been applying for other jobs. She finally received a job offer for $38,000. The company has offered her a position in one of three cities across Texas. The cities are Austin, Corpus Christi, and Victoria. Regardless of which city she chooses, the company will pay her medical insurance premium and part of her children's premiums. She has a choice of living and working in Austin, Corpus Christi, or Victoria. What advice will you give your friend?

17. Instruct students to list all the factors this friend should consider before choosing a city. After the students have created a list, have them share their list with a partner. Tell them to make any changes necessary on their list. Have students share their advice. The teacher should make a list on the board. ***(Sample responses: How far will she be from her family and friends? What will be the working conditions? What will be the cost of moving? How much does it cost to live in that city?)***

18. Explain that most of these considerations are unknown based on the reading. However, the Family Budget Estimator can be used to determine the cost of living for the three cities. Instruct students to enter the information found in the reading for each of the three cities. With a partner have them determine which of the three cities will provide their friend the most for her money. ***(Victoria requires the least of the three cities to live for the friend's situation. The Necessary Annual Income for each city: Victoria - $30,528, Corpus Christi $35,340, and Austin $42,420)*** See the entry for the Family Budget Estimator on the following page.



Source: Center For Public Policy Priorities Family Budget Estimator, http://www.familybudgets.org/

Evaluate/End

19. Ask students to determine what necessary decisions may be guided with an online family budget estimator. ***(Sample responses: The family budget estimator will allow families to evaluate the cost of living for different metro areas.)*** When looking for a job after graduation from college or vocational school, what do they need to consider and how can this tool help? ***(Sample response: If the location they choose to live is contingent upon their career choice, the cost of living in the location they choose to live.)***

Activity 7.3-1 Name _____ Class Period _____

Directions: Use the map below to identify the city in which we live (or another nearby city) listed as one of the 26 Texas metro areas. Then, select any other metro area, to be used for comparison.

Now, select from these categories to create a scenario to use on the following activities. This information can be used to determine the minimum household budget and average hourly wage to make ends meet in a given metro area.

1. Who pays the health insurance premium?
   - ☐ Household pays the entire family premium.
   - ☐ Employer pays all of one adult's premium and half of premium for rest of family.
2. How many adults are working full-time?
   - ☐ 1
   - ☐ 2
3. How many children live in the household? (0 – 3) ____
4. What is the family saving for? (You may select more than one)
   - ☐ No savings
   - ☐ Emergencies/Rainy Day
   - ☐ Retirement
   - ☐ College

Texas Metro Areas:

- ☐ Amarillo
- ☐ Austin-Round Rock – San Marcos
- ☐ Beaumont – Port Arthur
- ☐ Brownsville – Harlingen
- ☐ Bryan – College Station
- ☐ Corpus Christi
- ☐ Dallas – FW – Arlington
- ☐ Dallas – Plano – Irving
- ☐ El Paso
- ☐ Fort Worth – Arlington
- ☐ Houston – Sugar Land – Baytown
- ☐ Killeen – Temple – Fort Hood
- ☐ Laredo
- ☐ Longview
- ☐ Lubbock
- ☐ McAllen – Edinburg – Mission
- ☐ Midland
- ☐ Odessa
- ☐ San Angelo
- ☐ San Antonio – New Braunfels
- ☐ Sherman – Denison
- ☐ Texarkana
- ☐ Tyler
- ☐ Victoria
- ☐ Waco
- ☐ Wichita Falls

Key 7.3-1 Name _____ Class Period _____

This is a sample key. Responses will vary.

Now, select from these categories to create a scenario to use on the following activities. This information can be used to determine the minimum household budget and average hourly wage to make ends meet in a given metro area.

1. Who pays the health insurance premium?
   - ☐ Household pays the entire family premium.
   - ☒ Employer pays all of one adult's premium and half of premium for rest of family.
2. How many adults are working full-time?
   - ☐ 1
   - ☒ 2
3. How many children live in the household? (0 – 3) _2__
4. What is the family saving for? (You may select more than one)
   - ☐ No savings
   - ☒ Emergencies/Rainy Day
   - ☒ Retirement
   - ☒ College

Texas Metro Areas:

- ☐ Amarillo
- ☐ Austin-Round Rock – San Marcos
- ☐ Beaumont – Port Arthur
- ☐ Brownsville – Harlingen
- ☐ Bryan – College Station
- ☒ Corpus Christi
- ☐ Dallas – FW – Arlington
- ☐ Dallas – Plano – Irving
- ☐ El Paso
- ☐ Fort Worth – Arlington
- ☒ Houston – Sugar Land – Baytown
- ☐ Killeen – Temple – Fort Hood
- ☐ Laredo
- ☐ Longview
- ☐ Lubbock
- ☐ McAllen – Edinburg – Mission
- ☐ Midland
- ☐ Odessa
- ☐ San Angelo
- ☐ San Antonio – New Braunfels
- ☐ Sherman – Denison
- ☐ Texarkana
- ☐ Tyler
- ☐ Victoria
- ☐ Waco
- ☐ Wichita Falls

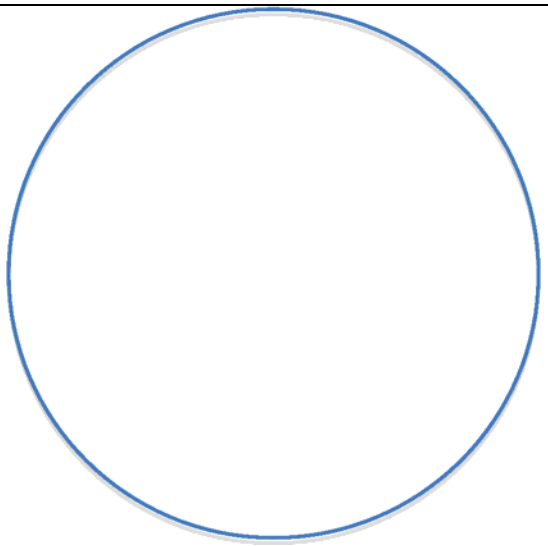
Activity 7.3-2 Name _____ Class Period _____

Directions: Use The Center for Public Policy Priorities, Family Budgets website: http://www.familybudgets.org to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in two Texas metro areas. Then, record the information for each metro area in the space below, including a circle graph, illustrating the details of the monthly budget.

Texas Metro Area #1: _____

Hourly wage needed to get by: _____

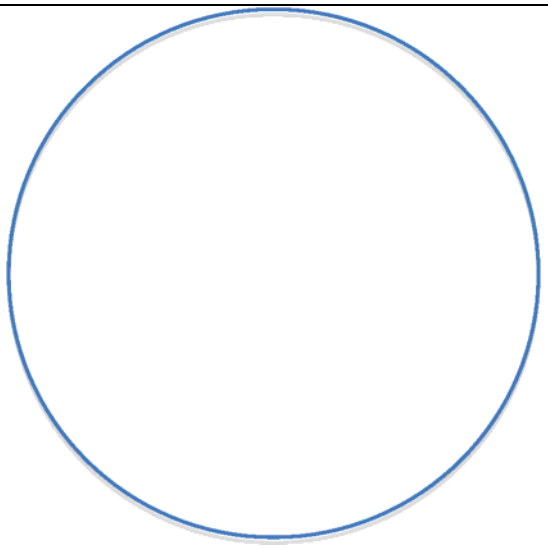
Family Bottom Line for the Month (Total Monthly Income Needed To Cover Expenses): _____



Texas Metro Area #2: _____

Hourly wage needed to get by: _____

Family Bottom Line for the Month (Total Monthly Income Needed To Cover Expenses): _____



For which metro area is the minimum household budget the least?

How can this information help a family?

Key 7.3-2 Name _____ Class Period _____

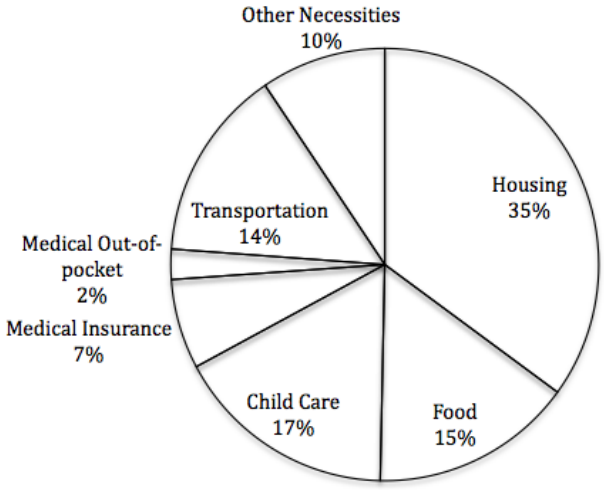
This is a sample key. Responses will vary depending upon scenarios used.

Texas Metro Area #1: Corpus Christi

Hourly wage needed to get by: $14.54

Family Bottom Line for the Month (Total Monthly Income Needed To Cover Expenses): $2424

Where does the money go?

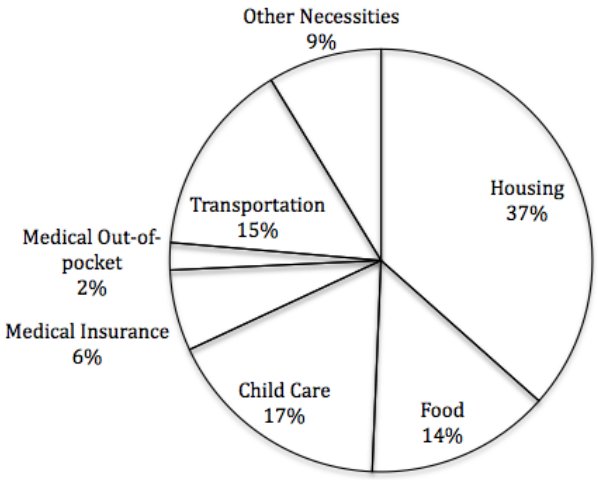


Texas Metro Area #2: Houston – Sugar Land – Baytown

Hourly wage needed to get by: $16.40

Family Bottom Line for the Month (Total Monthly Income Needed To Cover Expenses):$2734

Where does the money go?



For which metro area is the minimum household budget the least? *Answers will vary.*

How can this information help a family? *Sample responses: The family can determine how much money they will need to provide the basic needs for their family. The family can determine which metro area is the most affordable.*

Lesson Description

Students will analyze families' finances to identify assets and liabilities. They will use this information to calculate the families' net worth and learn the benefits of having a positive net worth. Students will work with other students to devise a plan to increase the families' net worth.

Texas Essential Knowledge and Skills (Target standards)

- **PFL Math 7.13C:** create and organize a financial assets and liabilities record and construct a net worth statement

Texas Essential Knowledge and Skills (Prerequisite standards)

- **Math 7.1:** Mathematical Process Standards
- **Math 7.3A:** add, subtract, multiply, and divide rational numbers fluently
- **Math 7.3B:** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers

National Standards (Supporting standards)

CEE - Council for Economic Education

CCSS - Common Core State Standards

- **CEE Using Credit 8.5:** Various financial institutions and businesses make consumer loans and may charge different rates of interest.
- **CCSS Math:** Standards for Mathematical Practices
- **CCSS Math 7.NS:** Apply properties of operations as strategies to add and subtract rational numbers
- **CCSS Math 7.NS:** Solve real-world and mathematical problems involving the four operations with rational numbers

PFL Terms

- Assets
- Liability
- Net worth

Time Required

Two 45-minute class periods

Materials Required

- A copy of **Visual 7.4-1a** and **7.4-1b**
- A copy of **Activity 7.4-1a** for each student
- A copy of **Activity 7.4-1b** for each group, print on blue paper and cut cards in advance
- A copy of **Activity 7.4-1c** for each group, print on yellow paper and cut cards in advance
- A copy of **Activity 7.4-2a** for each student
- A copy of **Activity 7.4-2b** for half of the students
- A copy of **Activity 7.4-2c** for half of the students

Procedure

Engage

1. Brainstorm with students about what it means for a family to be wealthy. ***(Samples: large savings balance, expensive house, expensive cars, large investments balances, expensive vacations, owning expensive items)***

Explore

2. Display **Visual 7.4-1a**. Tell students that this visual shows what family A and family B own. Then read the family descriptions below.

   - Family A owns a 3 bedroom house valued at $100,000 and one car. The home is furnished with modest furniture. The only valuable jewelry they own are wedding bands valued just under $800. They have an emergency savings account, a college savings account and a retirement savings. They also have two credit cards.
   - Family B owns a 5 bedroom house valued at $400,000, a car, and a SUV. The house is furnished with luxurious furniture. They also own a valuable piece of art and expensive jewelry. The family has a retirement savings and 6 credit cards.

3. Have the students vote on which family they believe to be worth more (wealthier). Post the results on the board.

Explain

4. Lead a class discussion about net worth. Tell students that net worth is similar to wealth. It represents the value of what you own minus what you owe. Use the questions below to lead the discussion.

   a. *Does it make you rich or wealthy to have a lot of things that cost a large amount? Why or why not?* ***(Accept all responses.)***

   b. How do most people purchase expensive goods such as a house or car? ***(Most people will pay a small part in cash and get a loan for the remaining balance. A few people may be able to buy with cash.)***

   c. What does it mean to have debt? ***(Debt is the money you owe. If you borrow $1000, your debt is $1000. To get a loan is to borrow money.)***

   d. *Is there something missing from* ***Visual 7.3.1a*** *that will help determine the net worth of each family? If we want to determine how much these families are worth, what are some other things we need to consider?* Allow students to brainstorm with a partner before accepting any answers. (***We don't know how much each family owes on each item they own. We don't know how much money they have in their savings. We don't know how much they owe on their credit card (credit card debt). We don't know the value of the cars or how much they owe.)***

Explore

5. Place students in groups of 3 – 4. Distribute a set of blue cards and yellow cards to each group. Distribute **Activity 7.4-1a** to each student.

6. Display **Visual 7.4-1b**. Explain that assets are the things you own. Ask students to give an example of something Family A owns. ***(house, car, savings account, furniture)*** Liabilities are things you owe. Ask students to give an example of what Family A might owe. ***(They***

may owe on their house. This is called a mortgage. They might owe money on their car or credit cards.) Explain that monthly expenses such as utilities, cell phone service, groceries are not included as a liability. Liabilities are only what are owed to a bank, credit union, or financial company. Net worth is the value of your assets minus your liabilities.

7. Instruct students that the blue cards show the assets and liabilities for Family A. Remember that assets are what a family owns. Liabilities are what a family owes. Using the Net Worth Worksheet on **Activity 7.4-1a**, record Family A's assets and liabilities in the appropriate column. Then total each column. Finally use the net worth formula to calculate the family's net worth. Then use the yellow cards to calculate Family B's net worth.

Explain

8. After students have completed activity, ask students to share their results and their answers to the questions on the bottom of **Activity 7.4-1a**.

   - Which items did not count as an asset or a liability? Why? ***(Gym membership and child care. These are not payments to financial institutions. You cannot own a service.)***
   - Which family has the greatest net worth? ***(Family A)***
   - Imagine that you worked for a bank. If both of the families requested a $10,000 loan, which family do you think best qualifies for the loan? Explain. ***(Since Family A has a greater net worth, they would best qualify for the loan. Family B has a large debt and may struggle paying for the loan.)***

9. Explain that financial institutions often require for their customers to report their net worth when applying for large loans. It is used to evaluate the customers overall financial standing. If the customer has a positive net worth, he or she is more likely to get the loan and pay a lower loan rate.

   a) *What would cause a person to have a negative net worth*? ***(when liabilities greater than assets)***

   b) *What would cause a family to have a positive net worth?* ***(when assets greater than liabilities)***

   c) *Why is it important to have a positive net worth?* ***(easier to get a loan and lower interest rates)***

   d) Other than net worth, what other criteria might a financial institution consider before lending money? ***(Financial institutions want to know your credit history. Such as how much you owe in debt and are you making regular payments. You need a history that shows you are financially responsible.)***

   e) Will net worth affect someone's credit score? ***(Yes. A large debt reduces your credit score.)***

f) *Many people try to reach the American Dream by purchasing everything they want. What are the consequences for buying everything you want?* ***(You may not have emergency funds, savings for retirement, or college savings. If you lose your job, you won't have the means to pay back the loan(s).)***

Elaborate

10. Prepare students to do a Chalkboard Splash. For a Chalkboard Splash, the teacher poses a question to the class. The students write ideas on the board randomly. Students will then categorize the responses. Pose this question to class: *What could Family B do to increase their net worth?* (***Sample responses include: sell the car and purchase a lower cost model, pay down/off their credit card debt or other liabilities, sell the house and purchase a less expense home, spend less on monthly expenses, get a second job or change to a higher paying job, sell artwork to a collector)*** Once students have contributed to the Chalkboard Splash, ask students to analyze the ideas on the board and identify two possible categories for the ideas (increase income and decrease debt). Go through each item and have students identify if the item is increasing income (II) or decreasing debt (DD). To close, explain to students that it is important for families or individuals to regularly check their net worth. This will help them determine if they are spending too much and/or if there is enough savings for the future or emergencies.

11. Distribute **Activity 7.4-2a** to each student. Group students into pairs. Give each pair either **Activity 7.4-2b** or **Activity 7.4-2c**. Instruct pairs to complete the net worth worksheet for their assigned family.

12. When students have completed the net worth worksheet for their family, direct them to find another pair with the same family. Tell them to discuss and compare their results with the other pair. If they have any discrepancies, they should each present their case to the teacher. The teacher should clarify any misunderstandings.

Evaluate/End

13. To close this activity, pose the questions below to the students.

    a. *How many of you had a family that had a positive net worth****? (Half of the students should raise their hand.)*** *What caused your family to have a positive net worth?* ***(The assets were greater than the liabilities.)***

    b. *How many of you had a family that had a negative net worth****? (Half of the students should raise their hand.)*** *What caused your family to have a negative net worth?* ***(The liabilities were greater than the assets.)***

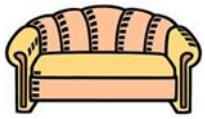
    c. *Did your family report an item that was not an asset or liability?* ***(cost of child care, tuition, cost of utilities)*** *Why did these items not classify as an asset or liability?* ***(The payment does not go to a financial institution. You cannot own these services.)***

14. Assign the students to write a letter explaining how assets and liabilities are used to create a net worth statement. Include the reason why a family should know their net worth and steps a family could take to change their net worth value.

Extension

1. Students may create a video for a Public Service Announcement to explain to adults how to determine their net worth Statement and its importance.

Visual 7.4-1

Family A – 2 adults and 2 children	Family B – 2 adults and 2 children
	
	
	
	 
	
	

Activity 7.4-1a Name _____ Class Period _____

	Net Worth Worksheet			
	Family A		Family B	
	Assets	Liabilities	Assets	Liabilities
House				
Autos				
Furniture				
Credit cards				
Bank accounts				
Retirement accounts				
Cash				
Loans				
Value of Jewelry and art				
TOTAL				

Family A: _____ – _____ = _____
Total Assets Total Liabilities Net Worth

Family B: _____ – _____ = _____
Total Assets Total Liabilities Net Worth

1. Which items did not count as an asset or a liability? Why? _____

   _____

2. Which family has the greatest net worth? _____

3. Imagine that you worked for a bank. If both of the families requested a $10,000 loan, which family do you think best qualifies for the loan? Explain. _____

   _____

Key 7.4-1a Name _____ Class Period _____

	Net Worth Worksheet			
	Family A		Family B	
	Assets	**Liabilities**	**Assets**	**Liabilities**
House	$100,000	$18,000	$400,000	$350,000
Autos	$22,000	$0	$79,000	$37,000
Furniture	$25,000	$450	$100,000	$43,000
Credit cards		$59		$18,575
Bank accounts	$20,000		$1,500	
Retirement accounts	$47,000		$47,000	
Cash	$50		$300	
Value of jewelry and art	$775	$0	$10,000	$0
TOTAL	$214,825	$18,509	$637,800	$448,575

Family A: $214,825 (Total Assets) – $18,509 (Total Liabilities) = $196,316 (Net Worth)

Family B: $637,800 (Total Assets) – $448,575 (Total Liabilities) = $189,225 (Net Worth)

1. Which items did not count as an asset or a liability? Why? **Gym membership and child care. These are not payments to financial institutions. You cannot own a service.**

2. Which family has the greatest net worth? **Family A**

3. Imagine that you worked for a bank. If both of the families requested a $10,000 loan, which family do you think best qualifies for the loan? Explain. **Since Family A has a greater net worth, they would best qualify for the loan. Family B has a large debt and may struggle paying for the loan.**

Activity 7.4-1b

Blue cards

Family A • Own a $100,000 house • Owe $18,000 on mortgage	Family A • Own a car valued at $22,000 • Car is paid off.	Family A • Own $25,000 worth of furniture • Owe $450 on furniture loan
Family A • Own jewelry valued at $775 • Jewelry is paid off	Family A • $15,000 in emergency savings account at bank	Family A • $4,500 in college savings account at bank
Family A • $47,000 in retirement account	Family A • Owe $59 on credit card 1	Family A • Owe $0 on credit card 2
Family A • $500 in checking account at bank	Family A • $50 cash	Family A • Pays $500 a month for child care

Activity 7.4-1c

Yellow cards

Family B • Own a $400,000 house • Owe $350,000 on mortgage	Family B • Own a car valued at $35,000 • Owe $22,000 on auto loan	Family B • Own a SUV valued at $44,000 • Owe $15,000 on auto loan
Family B • Owns $100,000 on furniture • Owes $43,000 on furniture loan	Family B • Owns $10,000 in jewelry and art work • Owes $0	Family B • $47,000 in Retirement account
Family B • Owe $5200 on credit card 1	Family B • Owe $3,555 on credit card 2	Family B • Owe $2,000 on credit card 3
Family B • Owe $120 on credit card 4	Family B • Owe $7,500 on credit card 5	Family B • Owe $200 on credit card 6
Family B • $1,500 in checking account at bank	Family B • $300 in cash	Family B • Pays $75 monthly fee for gym membership

Visual 7.4-1b

Vocabulary

Assets

the things you own: cash, bank accounts, investments, house

Liabilities

the things you owe: mortgage, car loan, credit card balances

Net Worth

The value of your assets minus your liabilities
Net Worth = Assets - Liabilities

Activity 7.4-2a Name _____ Class Period _____

Finding the Net Worth

Directions: Your teacher will assign you a family. Use the information provided to you on this family to determine the assets, liabilities and calculate the net worth.

Net Worth Worksheet for _____			
Assets (Own)		**Liabilities (Owe)**	
Balance of all bank accounts		Home mortgage	
Balance of all retirement accounts		Auto loan(s)	
Cash		Credit card(s)	
Value of home		Student loan(s)	
Value of auto(s)		Other loan(s)	
Value of furniture and household items		***Total Liabilities***	
Value of jewelry, art, antiques, etc.			
Total Assets			

Net Worth = _____

1. Which items did not count as an asset or a liability? _____
2. Does this family have a positive or negative net worth? _____
3. Determine three suggestions for this family to increase their net worth?

   _____

Activity 7.4-2b Name _____ Class Period _____

Family 1

The family has two adults and two young children. Both parents work full time jobs; one child is in day care all day and the other child in first grade and in after-school care. They own a house and two cars and carry some credit card debt.

Complete the Net Worth Worksheet for this family. Remember that not all monthly expenses are liabilities.

1. The house is valued at $95,000 with a mortgage balance of $45,000.
2. First car is worth $12,000. The family owes $5,000 on this auto loan.
3. Second car is worth $10,000 which is paid in full.
4. Child care costs are $600 per month.
5. Retirement accounts are valued at $15,000.
6. Balance on the credit cards total $2,000.
7. Checking account has a balance of $500.
8. Savings account has a balance of $1200.
9. They have $75 in cash.
10. The value of their furniture is approximately $4500 which is paid in full.
11. The miscellaneous household items are valued at $1200 which is paid in full.
12. Ms. Perez's jewelry is valued at $900; these were paid with the credit card.

Activity 7.4-2c Name _____ Class Period _____

Family 2

The family has one working parent, a stay-at-home parent and three children. Two of the children are in elementary school and the youngest child is in Pre-Kindergarten. They have a house, a car, a mini-van, and carry some credit card debt.

Complete the Net Worth Worksheet for this family. Remember that not all monthly expenses are liabilities.

1. The house is valued at $89,000 with a mortgage balance of $80,000.
2. The car is worth $15,000. The family owes $15,000 on this auto loan.
3. The mini-van is worth $20,000. The family owes $16,000 on this auto loan.
4. They financed new household furnishings valued at $5,000. The family owes $4500 on this loan.
5. They have $15,000 in their retirement account.
6. They have $1,500 in an emergency savings, $1,000 in savings, $500 in checking, and $1500 in a CD.
7. They have $200 in cash.
8. Balances on the credit cards total $15,000.
9. The family pays $500 per month for school loans; the current balance is $25,000.
10. The family pays $350 per month for Pre-Kindergarten tuition.
11. All of the children are on soccer teams which costs $100 per month.

Key 7.4-2b Name _____ Class Period _____

Finding the Net Worth

Directions: Your teacher will assign you a family. Use the information provided to you on this family to determine the assets, liabilities and calculate the net worth.

Net Worth Worksheet for Family 1

Assets (Own)		Liabilities (Owe)	
Balance of all bank accounts	**1,700**	Home mortgage	**45,000**
Balance of all retirement accounts	**15,000**	Auto loan(s)	**5,000**
Cash	**75**	Credit card(s)	**2,000**
Value of home	**95,000**	Student loan(s)	**0**
Value of auto(s)	**22,000**	Other loan(s)	
Value of furniture and household items	**5,700**	***Total Liabilities***	**$52,000**
Value of jewelry, art, antiques, etc.	**900**		
Total Assets	**$140,375**		

Net Worth = **$88,375**

1. Which items did not count as an asset or a liability? **Cost of child care**
2. Does this family have a positive or negative net worth? **Positive**
3. Determine three suggestions for this family to increase their net worth? **Sample responses: pay off credit cards, pay off auto loan, increase savings**

Key 7.4-2c Name _____ Class Period _____

Finding the Net Worth

Directions: Your teacher will assign you a family. Use the information provided to you on this family to determine the assets, liabilities and calculate the net worth.

Net Worth Worksheet for Family 2

Assets (Own)		**Liabilities (Owe)**	
Balance of all bank accounts	**4,500**	Home mortgage	**80,000**
Balance of all retirement accounts	**15,000**	Auto loan(s)	**31,000**
Cash	**200**	Credit card(s)	**15,000**
Value of home	**89,000**	Student loan(s)	**25,000**
Value of auto(s)	**35,000**	Other loan(s)	**4,500**
Value of furniture and household items	**5,000**	***Total Liabilities***	**$155,500**
Value of jewelry, art, antiques, etc.			
Total Assets	**$148,700**		

Net Worth = **-$6,800**

1. Which items did not count as an asset or a liability? **Tuition and utilities**
2. Does this family have a positive or negative net worth? **Negative net worth**
3. Determine three suggestions for this family to increase their net worth? **Sample responses: pay off credit card balances, pay off car loans, pay off student loan, increase savings**

Lesson Description

This lesson focuses on comparing simple interest and compound interest. Students discover the differences between simple and compound interest by creating a 5-year chart using both methods. An Interactive Booklet is used to help understand vocabulary. Students complete a chart for simple and compound interest and calculate the total interest earned for each method. The charts are glued into the Interactive Booklet as examples.

Students are divided into 6 groups in which each group will be given a unique scenario with different amounts for the principal. The groups calculate earnings from simple and compound interest over a 5-year period. Groups transfer this information onto chart paper and participate in a Gallery Walk to compare their results with results of the other groups.

Texas Essential Knowledge and Skills (Target standards)

PFL Math 7.13E calculate and compare simple interest and compound interest earnings

Texas Essential Knowledge and Skills (Prerequisite standards)

- **Math 7.1:** Mathematical Process Standards
- **Math 7.3A:** add, subtract, multiply, and divide rational numbers fluently
- **Math 7.3B:** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers
- **Math 7.4D:** solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

National Standards (Supporting standards)

CEE - Council for Economic Education

CCSS - Common Core State Standards

- **CEE Savings 8.5:** Principal is the initial amount of money upon which interest is paid.
- **CEE Savings 8.6:** Compound interest is the interest that is earned not only on the principal but also on the interest already earned.
- **CEE Savings 8.7:** The value of a person's savings in the future is determined by the amount saved and the interest rate. The earlier people begin to save, the more savings they will be able to accumulate, all other things equal, as a result of the power of compound interest.

- **CCSS Math:** Standards for Mathematical Practices
- **CCSS Math 7.RP:** Use proportional relationships to solve percent problems
- **CCSS Math 7.NS:** Apply properties of operations as strategies to add and subtract rational numbers
- **CCSS Math 7.NS:** Apply properties of operations as strategies to multiply and divide rational numbers
- **CCSS Math 7.NS:** Solve real-world and mathematical problems involving the four operations with rational numbers

PFL Terms

- Principal
- Interest
- Rate of interest
- Compound interest
- Simple interest

Time Required

Two 45-minute class period

Materials Required

- A copy of **Visual 7.5-1a**, **7.5-1b** and **7.5-1c**
- A copy of **Activity 7.5-1** for each student
- Copies of **Activity 7.5-2a** (enough for 1/6 of the class), **Activity 7.5-2b** (enough for 1/6 of the class), **7.5-2c** (enough for 1/6 of the class), **7.5-2d** (enough for 1/6 of the class), **7.5-2e** (enough for 1/6 of the class), and **7.5-2f** (enough for 1/6 of the class)
- Calculator for each student
- 2 Blank sheets of paper per student
- Tape or glue
- 1 pair of scissors for each pair of students
- Stapler
- 6 sheets of Chart paper
- Markers

Procedure

Engage

1. Display **Visual 7.5-1a**. Explain to the students that we are going to discuss various savings plans. First they will take this quick self-assessment to see what they know about saving options. Ask students to answer the questions on the visual to the best of their knowledge. Then have them explain their answers with a partner. Direct students to make any changes needed. Use the questions from the visual to conduct a class discussion.

   a. What are the different savings options offered by banks and credit unions? ***(Sample answers: savings account, Certificate of Deposit (CD), money market)***
   b. What are the advantages of using one of these savings options? ***(Sample answers: keep money safe, earn interest, the temptation to spend the money is lessened)***
   c. What does it mean to "earn interest"? ***(Sample answer: The financial institution pays the saver a small amount each month or each year for keeping his or her money in their institution.)***
   d. What are the current interest rates that financial institutions are paying for their various savings options? ***(Sample answer: 0.1%, 0.4%, 1.6%)***

Explain

2. Write these statistics on the board: 1975 – 10.75%, 1980 – 20%, 1995 – 9%, 2005 – 7%, 2007 – 7.75%. Then explain to students that interest rates for savings accounts are always fluctuating. The annual interest rates listed on the board are the highest interest rates paid for the given year. The determination of the interest rates is influenced by the Federal Reserve. This is the central bank of the United States. Top employees of the Federal Reserve are constantly studying the economy and analyzing data such as unemployment. They then make recommendations, such as interest rates, in an attempt

to stimulate the economy. No one knows when current interest rates will begin to increase. For today's lesson we will learn how interest rates are calculated for savings accounts. We will use different interest rates to better understand the impact these have on savings accounts.

3. Have students create an interactive booklet. Provide two sheets of paper to each student. Instruct students to fold the paper in half along the shorter line of symmetry and staple on the fold. Have students title the cover *Simple and Compound Interest*, include their name and decorate if time allows. The teacher models each step of the way.

4. Instruct students to orient the book so the fold is on top. Pages will be opened from bottom to top. Number the inside pages 1-6. Have them title the pages as follows: page 1 - Principal, page 2 - Interest, bottom half of page 2 - Annual Rate of Interest, page 3 - Simple Interest, and page 5 - Compound Interest. Leave pages 4 and 6 blank. These pages will be reserved for charts (see steps 6-10). A sample is provided as **Visual 7.5-1c** for clarification; however, do not share the visual with students until vocabulary words have been discussed.

5. Display **Visual 7.5-1b.** Discuss the definitions. Then have students write the definitions in their interactive booklet.

Explore

6. Divide the class into pairs and distribute **Activity 7.5-1** and one calculator to each student. Have students read the directions. Explain that the class will work the first two rows on each table together.

7. Use the explanation below to help students understand how to complete each row of the Simple Interest table. Model two rows for students. Then instruct them to complete the remaining rows independently or with a partner.

    a. Column 1 represents the number of years after the initial deposit of the principal.

    a. Column 2 is the amount to earn interest.

    b. Column 3 is the interest rate. In real-life, interest rates for savings account fluctuate. For our purpose, the interest rate will remain the same.

    c. Column 4 represents the interest earned. Multiply the value in column 2 times the value of column 3. (For row 1, this will be $100 x 0.05 = $5) Explain that the interest earned is transferred to a non-interest earning account.

    d. Column 5 is the ending balance that will earn interest. Enter the principal.

    e. The value of column 5 will be carried over to column 2 of the next row.

8. Once students have completed the first table, model the first two rows of the Compound Interest chart. Use the explanation below to help students understand how to complete each row. Then instruct them to complete the remaining rows independently or with a partner.

a. Column 1 represents the number of years after the initial deposit of the principal.

b. Column 2 is the amount to earn interest. For the first year, this will only be the initial amount deposited, the principal.

c. Column 3 is the annual interest rate. In real-life, interest rates for savings accounts fluctuate. For our purpose, the interest rate will remain the same.

d. Column 4 represents the interest earned. Multiply the value in column 2 times the value of column 3. (For row 1, this will be $100 x 0.05 = $5) Explain to students that they cannot earn a fraction of a cent. Therefore, they should round down to the hundredths place.

e. Column 5 is the ending balance. Find the sum of the value in column 4 and the value in column 2 to get the value of column 5.

f. Compound interest earns interest on the principal and the interest already earned. The value of column 5 will be carried over to column 2 of the next row.

Explain

9. Once students have completed the activity, allow students to share their responses for the last item on the activity. See the key for sample responses.

10. Distribute scissors and tape to students. Instruct them to cut out the simple interest chart and the compound interest chart on **Activity 7.5-1** and tape on pages 4 and 6, respectively of their interactive notebook. Tell students to use the interactive notebook as a reference for the next activity

Elaborate

11. Divide students into 6 groups. Distribute to each group one of the 6 activity sheets **Activity 7.5-2a** through **Activity 7.5-2f.** Explain to students that each group has an investor that will open two savings accounts. Each savings account will a one-time deposit for the same amount and the same interest rate. However, one will be simple interest and one will be compound interest. The members of each group should work together to complete the two tables.

12. When this is complete, one person from each group will then get one sheet of chart paper and two markers. Each group will post their results on the chart paper. Point out that the directions for this part are explained on the activity sheet.

13. Hang the completed charts around the room. The teacher should label each chart with a number of 1 to 6. Have students take out a blank sheet of paper. Fold it into 6 equal parts. Label each section 1 to 6.

14. Have students count off 1 to 6. Then regroup students by asking them to stand at the chart paper with their number. They should take a pencil and the folded paper with them.

15. Have students participate in a Gallery Walk to compare the different results. As they visit

each chart, they should do two things. 1) Write the difference between the total interest earned on compound interest and simple interest. Record this on the folded paper with the corresponding number. 2) With your group discuss how each set of data are alike and how they are different. Instruct groups to answer the two questions on their paper. The teacher should have the students rotate to the next chart every 2 minutes or a time the teacher determines is appropriate for the class.

Evaluate/End

16. When groups have completed their Gallery Walk and returned to their seats, lead a class discussion of their findings by asking the questions below.

    a) *What determined the amount of interest earned over the 5 year period?* (***Whether you received simple interest or compound interest, interest rate, principal)***

    b) *Which method of interest produced the larger amount of earnings? (**Compound)***

    c) *Which chart had the greatest difference between compound interest earned and simple interest earned? **(The one with a principal of $1800.)** Why is this? **(The more money you invest using compound interest, the more interest that is earned.***

    d) *What would you tell a friend about the difference between simple and compound interest? (**Simple interest earns interest based on principal alone; compound interest earns interest on the principal and on the accrued interest already earned. The interest is also making interest**.)*

Extension

- Have students predict the interest earned for their chart above on both the simple and compound interest for 10 years. Then have students extend their chart and calculate through 10 years. Next have students compare the difference between simple and compound after 5 years and after 10 years.

Visual 7.5-1a

Directions: Answer the following questions on a sheet of paper.

a. What are the different savings options offered by banks and credit unions?

b. What are the advantages of using one of these savings options?

c. What does it mean to "earn interest"?

d. What are the current interest rates that financial institutions are paying for their various savings options?

Visual 7.5-1b

Principal - The principal is the amount of money upon which interest is paid.

Annual Rate of Interest - The percentage an investor will earn on an investment each year.

Interest - For the saver, interest is the price a financial institution pays for using a saver's money and is normally expressed as a percentage of the amount saved.

Simple Interest – The amount of interest earned on the principal only.

Compound Interest – The interest that is earned on the principal and the interest already earned.

Visual 7.5-1c

Simple and Compound Interest

Name

Principal

Principal is the initial amount of money upon which interest is paid. (The amount deposited before interest is earned.)

Page 1

Annual Rate of Interest

The percentage an investor will earn on an investment each year.

Interest

For the saver, interest is the price a financial institution pays for using a saver's money and is normally expressed as a percentage of the amount saved.

Page 2

Simple Interest

Amount of interest earned on the principal only

Page 3

Simple Interest

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$100	5%	$5	$100
2	$100	5%	$5	$100
3	$100	5%	$5	$100
4	$100	5%	$5	$100
5	$100	5%	$5	$100
Total			$25	

Page 4

Compound Interest

Interest that is earned on the principal and the interest already earned

Page 5

Compound Interest (For interest earned round down to the hundredth place.)

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$100	5%	$5	$105
2	$105	5%	$5.25	$110.25
3	$110.25	5%	$5.51	$115.76
4	$115.76	5%	$5.78	$121.54
5	$121.54	5%	$6.07	$127.61
Total			$27.61	

In words, write a comparison of simple interest and compound interest. **Sample response: Simple interest only earns interest on the principal. Compound earns interest on the principal and interest. Therefore compound interest earns more interest.**

Page 6

Activity 7.5-1 Name _____ Class Period _____

Directions: Complete each table with the information provided.

Jessica opened a savings account with a one-time deposit of $100 that will be left in the account for at least 5 years. The savings account will pay 5% simple interest each year. Use the chart below to calculate the amount of interest she will earn in 5 years.

Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1	$100	5%	$5	$100
2	$100	5%		
3		5%		
4		5%		
5		5%		
Total				

Cheyenne opened a savings account with a one-time deposit of $100 that will be left in the account for at least 5 years. The savings account will pay 5% compound annually. Use the chart below to calculate the amount of interest she will earn in 5 years.

Compound Interest (truncate after the hundredth place)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1	$100	5%	$5	$105
2	$105	5%		
3		5%		
4		5%		
5		5%		
Total				

In words, write a comparison of simple interest and compound interest. _____

_____

_____

Key 7.5-1 Name _____ Class Period _____

Directions: Complete each table with the information provided.

Jessica opened a savings account with a one-time deposit of $100 that will be left in the account for at least 5 years. The savings account will pay 5% simple interest each year. Use the chart below to calculate the amount of interest she will earn in 5 years.

Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1	$100	5%	$5	$100
2	$100	5%	$5	$100
3	$100	5%	$5	$100
4	$100	5%	$5	$100
5	$100	5%	$5	$100
Total			$25	

Cheyenne opened a savings account with a one-time deposit of $100 that will be left in the account for at least 5 years. The savings account will pay 5% compound annually. Use the chart below to calculate the amount of interest she will earn in 5 years.

Compound Interest (For interest earned round down to the hundredth place.)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1	$100	5%	$5	$105
2	$105	5%	$5.25	$110.25
3	$110.25	5%	$5.51	$115.76
4	$115.76	5%	$5.78	$121.54
5	$121.54	5%	$6.07	$127.61
Total			$27.61	

In words, write a comparison of simple interest and compound interest. **Sample response: Simple interest only earns interest on the principal. Compound earns interest on the principal and interest. Therefore compound interest earns more interest.**

Activity 7.5-2a Name _____ Class Period _____

Directions: Complete each table with the information provided. Then get one chart paper and 2 markers. Draw a line down the center of the chart paper and label one side Simple Interest and one side Compound Interest. Under each heading list the principal, interest rate, and interest earned after 5 years.

Griffin opened two savings accounts with a one-time deposit of $300 in each account. The first savings account will pay 5% simple interest each year. The second one will pay 5% compound annually. Use the charts below to calculate the amount of interest he will earn in 5 year period.

Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Compound Interest (For interest earned round down to the hundredth place.)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Activity 7.5-2b Name _____ Class Period _____

Directions: Complete each table with the information provided. Then get one chart paper and 2 markers. Draw a line down the center of the chart paper and label one side Simple Interest and one side Compound Interest. Under each heading list the principal, interest rate, and interest earned after 5 years.

Huan opened two savings accounts with a one-time deposit of $600 in each account. The first savings account will pay 5% simple interest each year. The second one will pay 5% compound annually. Use the charts below to calculate the amount of interest he will earn in 5 year period.

Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Compound Interest (For interest earned round down to the hundredth place.)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Activity 7.5-2c Name _____ Class Period _____

Directions: Complete each table with the information provided. Then get one chart paper and 2 markers. Draw a line down the center of the chart paper and label one side Simple Interest and one side Compound Interest. Under each heading list the principal, interest rate, and interest earned after 5 years.

Betty opened two savings accounts with a one-time deposit of $900 in each account. The first savings account will pay 5% simple interest each year. The second one will pay 5% compound annually. Use the charts below to calculate the amount of interest she will earn in 5 year period.

Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Compound Interest (For interest earned round down to the hundredth place.)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Activity 7.5-2d Name _____ Class Period _____

Directions: Complete each table with the information provided. Then get one chart paper and 2 markers. Draw a line down the center of the chart paper and label one side Simple Interest and one side Compound Interest. Under each heading list the principal, interest rate, and interest earned after 5 years.

Ella opened two savings accounts with a one-time deposit of $1200 in each account. The first savings account will pay 5% simple interest each year. The second one will pay 5% compound annually. Use the charts below to calculate the amount of interest she will earn in 5 year period.

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Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Compound Interest (For interest earned round down to the hundredth place.)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Activity 7.5-2e Name _____ Class Period _____

Directions: Complete each table with the information provided. Then get one chart paper and 2 markers. Draw a line down the center of the chart paper and label one side Simple Interest and one side Compound Interest. Under each heading list the principal, interest rate, and interest earned after 5 years.

Ned opened two savings accounts with a one-time deposit of $1500 in each account. The first savings account will pay 5% simple interest each year. The second one will pay 5% compound annually. Use the charts below to calculate the amount of interest he will earn in 5 year period.

Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Compound Interest (For interest earned round down to the hundredth place.)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Activity 7.5-2f Name _____ Class Period _____

Directions: Complete each table with the information provided. Then get one chart paper and 2 markers. Draw a line down the center of the chart paper and label one side Simple Interest and one side Compound Interest. Under each heading list the principal, interest rate, and interest earned after 5 years.

Felipe opened two savings accounts with a one-time deposit of $1800 in each account. The first savings account will pay 5% simple interest each year. The second one will pay 5% compound annually. Use the charts below to calculate the amount of interest he will earn in 5 year period.

Simple Interest

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Compound Interest (For interest earned round down to the hundredth place.)

1	2	3	4	5
Year	Amount to Earn Interest	Interest Rate	Interest Earned (2) x (3)	Ending Balance
1				
2				
3				
4				
5				
Total				

Key 7.5-2a

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$300	5%	$15	$300
2	$300	5%	$15	$300
3	$300	5%	$15	$300
4	$300	5%	$15	$300
5	$300	5%	$15	$300
Total			$75	

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$300	5%	$15	$315
2	$315	5%	$15.75	$330.75
3	$330.75	5%	$16.53	$347.28
4	$347.28	5%	$17.36	$364.64
5	$364.64	5%	$18.23	$382.87
Total			$82.88	

Key 7.5-2b

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$600	5%	$30	$600
2	$600	5%	$30	$600
3	$600	5%	$30	$600
4	$600	5%	$30	$600
5	$600	5%	$30	$600
Total			$150	

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$600	5%	$30	$630
2	$630	5%	$31.50	$661.50
3	$661.50	5%	$33.07	$694.57
4	$694.57	5%	$34.72	$729.29
5	$729.29	5%	$36.46	$765.75
Total			$165.75	

Key 7.5-2c

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$900	5%	$45	$900
2	$900	5%	$45	$900
3	$900	5%	$45	$900
4	$900	5%	$45	$900
5	$900	5%	$45	$900
Total			$225	

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$900	5%	$45	$945
2	$945	5%	$47.25	$992.25
3	$992.25	5%	$49.61	$1041.86
4	$1041.86	5%	$52.09	$1093.95
5	$1093.95	5%	$54.69	$1148.64
Total			$248.64	

Key 7.5-2d

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$1200	5%	$60	$1200
2	$1200	5%	$60	$1200
3	$1200	5%	$60	$1200
4	$1200	5%	$60	$1200
5	$1200	5%	$60	$1200
Total			$300	

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$1200	5%	$60	$1260
2	$1260	5%	$63	$1323
3	$1323	5%	$66.15	$1389.15
4	$1389.15	5%	$69.45	$1458.60
5	$1458.60	5%	$72.93	$1531.53
Total			$331.53	

Key 7.5-2e

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$1500	5%	$75	$1500
2	$1500	5%	$75	$1500
3	$1500	5%	$75	$1500
4	$1500	5%	$75	$1500
5	$1500	5%	$75	$1500
Total			$375	

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$1500	5%	$75	$1575
2	$1575	5%	$78.75	$1653.75
3	$1653.75	5%	$82.68	$1736.43
4	$1736.43	5%	$86.82	$1823.25
5	$1823.25	5%	$91.16	$1914.41
Total			$414.41	

Key 7.5-2f

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$1800	5%	$90	$1800
2	$1800	5%	$90	$1800
3	$1800	5%	$90	$1800
4	$1800	5%	$90	$1800
5	$1800	5%	$90	$1800
Total			$450	

1 Year	2 Amount to Earn Interest	3 Interest Rate	4 Interest Earned (2) x (3)	5 Ending Balance
1	$1800	5%	$90	$1890
2	$1890	5%	$94.50	$1984.50
3	$1984.50	5%	$99.22	$2083.72
4	$2083.72	5%	$104.18	$2187.90
5	$2187.90	5%	$109.39	$2297.29
Total			$497.29	

Lesson Description

This lesson takes students through the process of determining the best purchase price of an item by looking at incentives offered to the purchaser. The lesson uses the example of shopping for a plasma TV. Students compare buying at the sale price, using a coupon, and taking advantage of a rebate offer when purchasing the TV. They then analyze the results to determine the "best deal." Next, students choose four problems to solve to find the lowest/best total price.

Texas Essential Knowledge and Skills (Target standards)

- **PFL Math 7.13F:** analyze and compare monetary incentives including sales, rebates and coupons

Texas Essential Knowledge and Skills (Prerequisite standards)

- **Math 7.1:** Mathematical Process Standards
- **Math 7.3A:** add, subtract, multiply, and divide rational numbers fluently
- **Math 7.3B:** apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers
- **Math 7.4D:** solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

National Standards (Supporting standards)

CEE - Council for Economic Education

CCSS - Common Core State Standards

- **CEE Buying Goods and Services 4.5** Informed decision making requires comparing the costs and benefits of spending alternatives. Costs are things that a decision maker gives up; benefits are things that a decision maker gains.
- **CCSS Math:** Standards for Mathematical Practices
- **CCSS Math 7.NS:** Apply properties of operations as strategies to add and subtract rational numbers
- **CCSS Math 7.NS:** Apply properties of operations as strategies to multiply and divide rational numbers
- **CCSS Math 7.NS:** Solve real-world and mathematical problems involving the four operations with rational numbers

PFL Terms

- Sale
- Coupon
- Rebate
- Redeem

Time Required

One 45-minute class period

Materials Required

- A copy of **Activity 7.6-1** and **7.6-2** for each student
- Paper and pencil for each pair of students
- A white boards and a marker (optional) for each student
- Exit ticket for each student

Procedure

Engage

1. Set the stage for the lesson by giving students a scenario such as the following:

   Last weekend I was so bummed out. I finished grading papers, did the yard work and other chores, and was all set to relax and watch the big game. I pushed the button on the TV remote and nothing. Nothing?!! Do it again. Still nothing. Oh man, I guess my old TV was done. Time to go shopping for a new one.

   Now I consider myself a pretty smart shopper. In other words, I get the best deal I can find for my money. School teachers need to spend their money wisely to make it go as far as possible.

Explore/Explain

2. Distribute a white board and a marker (or paper) to each student. Lead a Think-Pair-Share (TPS) about smart shopping using the prompts below. Have each student first answer the questions on the white boards or on paper. Next, have two or three students discuss the answer with the class. Third, have several students share their answers while students add to their TPS list.

   a. *What are some things that someone might do for you to consider them a smart shopper?* ***(Sample Responses: compare prices, buy items on sale, buy non-name brand items, etc.)***

   b. *What does it mean for an item to be on sale?* ***(The cost of the item is temporarily less than the regular price. After a short period of time, the cost will return to the regular price.)*** *An example of a sale might be that a particular pair of jeans regularly sells for $39.95. For one week only, the local department store has them on sale for $24.95. After the week is up, the price will return to $39.95.*

   c. *What else might a smart shopper do?* ***(A smart shopper might use a coupon.)*** *What does that mean? (****When a shopper purchases the item with a coupon (same size, brand, and quantity), the value printed on the coupon is subtracted from the purchase price. The coupon is then sent to the manufacturer who reimburses the store the coupon value plus a handling fee.)*** *For example, a $1.00 coupon off the purchase price of a package of Oreo cookies would bring the price down from $3.99 for a package to $2.99 for the same package of Oreos.*

   d. *Can you think of any other things a smart shopper might do?* ***(A smart shopper might use a rebate.)*** *Can you explain a rebate? (****A rebate is money you get back for buying a specific item. When you get a rebate, you first purchase the item. Then, you have a definite period of time to send in the rebate certificate, your sales receipt, and a proof of purchase that you really did buy the item. In 6-8 weeks, you should receive your rebate.)*** *There are many rebates offered; some of the most popular ones are for the purchase of a new car. These can be worth hundreds or even thousands of dollars.*

   e. *Manufacturers and stores use sales, coupons, and rebates to attract business. These are incentives used to get consumers to purchase these items. They also work in favor of the consumer as they reduce the regular cost of the item. Can you think of any other ways that might help a consumer spend less on a purchase or an incentive offer*

to entice a consumer to purchase a specific item? ***(Sample response: comparison shopping, free gifts given when a purchase is made, airline miles, etc.)*** Accept reasonable responses. Have students explain their response so that all students have understanding.

3. Say: *Now that you know some of the things a smart shopper would consider. Let's go shopping!*

   Before heading out to the store, I sat down with the sale ads in the newspaper and also got online to search out the best deal. This is what I found.

4. Distribute **Activity 7.6-1** to each student. Explain that each row shows a different incentive for customers to purchase the same 50-inch Panasonic Plasma TV. The Big Box Store has a sale on the TV, up to 25% off. Neighborhood Depot has a coupon and Electronic Warehouse is offering a rebate. Ask students to predict which one of the three is the best deal.

5. Tell students that we will work through each problem together to determine the best deal including tax. Assume the tax rate for this city is 8.25%. Work through each of the examples with the students. Ask students how they would calculate the cost of the TV in each situation. Students should work the steps on scratch paper or individual white boards. Check for understanding as students work through the steps. Be sure to model for the class so that all students remain on target.

   Big Box Store - Sale

Identify discount for 50 inch TV:	15% off
Calculate discount:	$729.99 x .15 = $109.50
Calculate cost after discount:	$729.99 - $109.50 = $620.49
Calculate tax :	$620.49 x .0825 = $51.19
Calculate final price with tax:	$620.49 + $51.19 = $671.68
Calculate total cost with delivery:	$671.68 (free delivery)

   Neighborhood Depot - Coupon

Identify discount for 50 inch TV:	$100 off
Calculate cost after discount:	$699.99 - $100 = $599.99
Calculate tax :	$599.99 x 8.25% (.0825) = $49.50
Calculate discounted price with tax:	$599.99 + $49.50 = $649.49
Calculate total cost with delivery:	$649.49 + $50 = $699.49

   Electronic Warehouse - Rebate

Identify discount for 50 inch TV:	$150 rebate
Calculate tax :	$734.95 x .0825 = $60.63
Calculate price with tax:	$734.95 + $60.63 = $795.58
Calculate total cost with delivery:	$795.58 + $35.00 = $830.58
Calculate the total cost factoring in the rebate:	$830.58 - $150.00 = $680.58

6. Lead a class discussion about smart shopping using the prompts below.
   a. *Which is the best deal?* ***(The first one: $671.68 at the Big Box Store)***

b. *If I had purchased the TV at regular price, I would have had to pay $790.21 including the taxes. How much are my savings by buying at the sale price rather than the regular price?* ***($118.53)***

c. *Why are the savings more than the 15%?* ***(When the purchase price is reduced, so are the taxes.)***

d. *Why is the rebate subtracted after taxes and delivery charges but the coupon is subtracted before taxes and delivery charges?* ***(Rebates are usually applied after buying the product and getting it home. Before you get the purchase to your home you must pay the taxes and delivery charge if applicable. Then you mail in a proof of purchase and receive the rebate weeks later in the mail. A coupon is used immediately at the time of purchase before taxes.)***

e. *How do our findings compare to your prediction? Why do you think that happened?*

Elaborate

7. Distribute **Activity 7.6-2** to each student. Say: *Now that you are becoming smart shoppers, you will use what you now know to find the best deals and prices on some everyday purchases.* ***Activity 7.6-2*** *has 6 different situations. Some use coupons, rebates, sales, or a combination of those. Show your work and be sure to explain your reasoning when asked.*

Evaluate/End

8. Distribute exit tickets for students to complete before leaving the classroom. As students exit the classroom, they hand the teacher completed exit tickets.

EXTENSIONS

1. Provide students with grocery ads and a box of coupons. Students find coupons that match with the grocery ad. They determine the amount of money that a consumer will save using the coupon.
2. Students choose an electronic item they would like to have, i.e., computer, game system, digital camera, etc. Using a variety of available resources, they research the cost of buying this item for the best deal. Encourage students to look for purchase incentives such as coupons, sales, and/or rebates. Students calculate the percentage saved. Recognize the students who saved the greatest percentages and got the "Best Deals."

Activity 7.6-1 Name _____ Class Period _____

Directions: Compare the prices of the 50-inch Panasonic Plasma TV to determine the best deal. Be sure to consider taxes and delivery charges, if applicable.

Big TV Sale at the Big Box Store

22-30 inch TVs	25% off
32-42 inch TVs	20% off
44-48 inch TVs	18% off
50-55 inch TVs	15% off
60-inch or larger TVs	10% off

up to 25% off & free delivery

Brands include: Samsung, Vizio, Panasonic, LG, RCA, and Insignia.

50-inch Panasonic Plasma TV

$729.99

Sale price:

8.25% tax:

Delivery charge:

Total:

NEIGHBORHOOD DEPOT
VALUABLE COUPON

Coupon good for $75 off all TVs smaller than 48 inches or $100 off all TVs 48 inches or larger. Coupon subject to TVs in stock.

Delivery Charge: $50.00 **Expiration Date: June 30**

50-inch Panasonic Plasma TV

$699.99

Less coupon:

8.25% tax:

Delivery charge:

Total:

Electronic Warehouse

Purchase any plasma TV in stock this month and receive rebate when you submit UPC proof of purchase and original sales receipt. Rebate certificate must be received by June 15th. Allow 6 weeks to process rebate.

22-36 inch TV	$100 rebate
37-48 inch TV	$125 rebate
50-65 inch TV	$150 rebate
66 inch and larger TV	$175 rebate

Delivery Charge: $35

50-inch Panasonic Plasma TV

$734.95

8.25% tax:

Delivery charge:

Rebate:

Total:

Key 7.6-1

Name _____ Class Period _____

Directions: Compare the prices of the 50-inch Panasonic Plasma TV to determine the best deal. Be sure to consider taxes and delivery charges, if applicable.

Big TV Sale at the Big Box Store

22-30 inch TVs	25% off
32-42 inch TVs	20% off
44-48 inch TVs	18% off
50-55 inch TVs	15% off
60-inch or larger TVs	10% off

up to 25% off & free delivery

Brands include: Samsung, Vizio, Panasonic, LG, RCA, and Insignia.

50-inch Panasonic Plasma TV

$729.99

Sale price:	$620.49
8.25% tax:	$51.19
Delivery charge:	0
Total:	$671.68

NEIGHBORHOOD DEPOT
VALUABLE COUPON

Coupon good for **$75 off** all TVs less than 48 inches or **$100 off** all TVs 48 inches or larger. Coupon subject to TVs in stock.

Delivery Charge: $50.00 **Expiration Date: June 30**

50-inch Panasonic Plasma TV

$699.99

Less coupon:	$599.99
8.25% tax:	$49.50
Delivery charge:	$50.00
Total:	$699.49

Electronic Warehouse

Purchase any plasma TV in stock this month and receive rebate when you submit UPC proof of purchase and original sales receipt. Rebate certificate must be received by June 15th. Allow 6 weeks to process rebate.

22-36 inch TV	$100 rebate
37-48 inch TV	$125 rebate
50-65 inch TV	$150 rebate
66 inch and larger TV	$175 rebate

Delivery Charge: $35

50-inch Panasonic Plasma TV

$734.95

8.25% tax:	$60.63
Delivery charge:	$35.00
Less Rebate:	$150.00
Total:	$680.58

Activity 7.6-2 Name _____ Class Period _____

Directions: Select the "best deal" for purchasing the item(s) described. Show your work and explain your reasoning on a separate sheet of paper. Then calculate the final cost with a tax rate of re 8.25%.

1. Shiny Shampoo cost $6.98 for a 14 oz. bottle. A 28 oz. bottle of Shiny Shampoo cost $12.99. You have a $2.00 coupon good on any size bottle of Shiny Shampoo. Which bottle is the better buy if you use the coupon?	**Best choice per oz:** **Total cost:**
2. Aunt Ginny's triplets are playing basketball this season and need shoes. The regular price of basketball shoes is $39 per pair. She found a store that offered a rebate of $10 per pair (limit 2 per family). Uncle Ben found a store that sells the same shoes at the same price advertising Buy One Pair, Get Second Pair Half Off. Which is the better offer before taxes? After taxes? 	**Best Choice for 3 pairs:** **Total cost for 3 pairs:**
3. Your birthday is coming up and your parents said you could invite four friends to a concert by your favorite band. Ticket prices include tax and cost $35.00 for one, $65.00 for two, and $125 for a group of four. If purchased before the 15th, you receive a 5% discount. Today is the 10th. What will be the price for 5 tickets purchased today?	**Total cost for 5 tickets:**
4. Charlie needs 6 pairs of socks. He can buy 2 pairs of socks for $4.99, 3 pairs for $8.49, or 6 pairs for $15.95. Which packages should he buy and what will be the total cost before tax?	**Best Choice:** **Total cost for socks:**
5. Carly plans to buy exactly 3 cans of Soupy Soup. Evaluate the three ads and choose the deal that provides the greatest saving. Then give a reason for your choice. Soupy Soup 20% off Regular price: $1.50 Soupy Soup Buy 2 Get 1 Free Regular price: $1.50 Soupy Soup Regular price: $1.50 Coupon: Save 50¢ on one can	**Best Choice:** **Total cost for 3 cans:**
6. The Smoothie Store is having a sale: 2 Fruit Smoothies for $3.89. I really want a strawberry smoothie. My BFF wants to get a Banana Smoothie. If we both get a smoothie, what is the total cost for each smoothie?	**Total cost for each:**

Key 7.6-2 Name _____ Class Period _____

Directions: Select the "best deal" for purchasing the item(s) described. Be sure to show your work and explain your reasoning when asked on another sheet of paper. Taxes are 8.25% (.0825).

1. Shiny Shampoo cost $6.98 for a 14 oz. bottle. A 28 oz. bottle of Shiny Shampoo cost $12.99. You have a $2.00 coupon good on any size bottle of Shiny Shampoo. Which bottle is the better buy if you use the coupon?

14 oz. bottle
$6.98 - $2.00 = $4.98 for a 14 oz. bottle
$4.98 ÷ 14 oz. = .356 per oz.
$4.98 x .0825 = $0.41 tax
$4.98 + $0.41 = $5.39

28 oz. bottle
$12.99 - $2.00 = $10.99
$10.99 ÷ 28 oz. = $.395 per oz.

Best choice per oz: 14 oz.

Total cost: $5.39

2. Aunt Ginny's triplets are playing basketball this season and need shoes. The regular price of basketball shoes is $39 per pair. She found a store that offered a rebate of $10 per pair (limit 2 per family). Uncle Ben found a store that sells the same shoes at the same price advertising Buy One Pair, Get Second Pair Half Off. Which is the better offer before taxes? After taxes?

Before taxes:
Rebate offer:
$39 x 3 pairs of shoes = $117.00
$117.00 – 2($10) rebate = $97.00

Buy One Pair, Get Second Pair Half Off
$39 + $39(.5) + $39 = $97.50

$97.00 < $97.50 (rebate is better offer)

After taxes:
Rebate offer:
$39 x 3 pairs of shoes = $117.00
$117.00 x .0825 = $9.65 tax
$117 + $9.65 = $126.65 Total
$126.65 – 2($10) rebate = $106.65 Final Cost

Buy One Pair, Get Second Pair Half Off
$39 + $39(.5) + $39 = $97.50
$97.50 x .0825 tax = $8.04
$97.50 + $8.04 tax = $105.54 Total/Final Cost

Before taxes:
Best Choice for 3 pairs:
Rebate offer ($97.00)

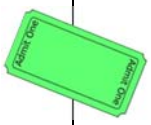
After taxes:
Store Special Buy One Pair, Get Second Pair Half Off

Total cost for 3 pairs:
$105.54

3. Your birthday is coming up and your parents said you could invite four friends to a concert by your favorite band. Ticket prices include tax and cost $35.00 for one, $65.00 for two, and $125.00 for a group of four. If purchased before the 15th, you receive a 5% discount. Today is the 10th. What will be the price for 5 tickets purchased today?

5 tickets: *$125.00 + $35.00 = $160.00*
5% discount *$160.00 x .05 = $8.00*
Discounted cost of tickets *$160.00 - $8.00 = $152.00*

Total cost for 5 tickets:



$152.00

4. Charlie needs 6 pairs of socks. He can buy 2 pairs of socks for $4.99, 3 pairs for $8.49, or 6 pairs for $15.95. Which packages should he buy and what will be the total cost before tax?

Package of 2:
$4.99 x .0825 = .41
$4.99 + .41 = $5.40 *price per pair $5.40 ÷ 2 = $2.70*
3 packages of 2= 6 pairs
$5.40 x 3 = $16.20

Package of 3:
$8.49 x .0825 = .70
$8.49 + .70 = $9.19 price per pair $9.19 ÷ 3 = $3.06
2 packages of 3 = 6 pairs
$9.19 x 2 = $18.38

Package of 6:
$15.95 x .0825 = 1.32
$15.95 + $1.32 = $17.27 price per pair $17.27 ÷ 6 = $2.88

Best Choice: 3 packages with 2 pair in each

Total cost for socks: $16.20

5. Carly plans to buy exactly 3 cans of Soupy Soup. Evaluate the three ads and choose the deal that provides the greatest saving. Then give a reason for your choice.

Soupy Soup	Soupy Soup	Soupy Soup
20% off	Buy 2 Get 1 Free	Regular price: $1.50
Regular price: $1.50	Regular price: $1.50	Coupon: Save 50¢ on one can

Sale *$1.50 x .20 = .30*
$1.50 - .30 = $1.20 per can
$1.20 x 3 cans = $3.60

Buy 2 Get 1 Free *$1.50 + $1.50 + 0 = $3.00* *(tax) $3.00 x .0825 = .25*
(with tax) $3.00 + $.25 = $3.25

Coupon *$1.50 x 3 = $4.50*
$4.50 - .50 (coupon) = $4.00

If 3 separate Coupons *$1.50 - .50 = $1.00 per can*
$1.00 x 3 = $3.00 three cans with three coupons

Best Choice: Buy 2 Get 1 Free

Total cost for 3 cans: $3.25

6. The Smoothie Store is having a sale: 2 Fruit Smoothies for $3.89. I really want a strawberry smoothie. My BFF wants to get a Banana Smoothie. If we both get a smoothie, what is the total cost for each smoothie?

Tax *$3.89 x .0825 = .32*
Cost for smoothies with tax *$3.89 + .32 = $4.21*
Split cost with BFF *$4.21 ÷ 2 = $2.105*

Total cost for each: One will pay $2.10 and one will pay $2.11.

Exit Ticket

The most important thing I learned from today's lesson is

Three possible ways to save money when purchasing an item are:

1.
2.
3.

Name: Teacher:

Exit Ticket

The most important thing I learned from today's lesson is

Three possible ways to save money when purchasing an item are:

1.
2.
3.

Name: Teacher:

Exit Ticket

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Three possible ways to save money when purchasing an item are:

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