

Teacher Notes



Personal Finance and Budget

Activity 1 Calculating the Cost of Living

Activity at a Glance

- ◆ **Subject:** Social Studies
- ◆ **Subject Area:** Economics
- ◆ **Category:** Personal Finance
- ◆ **Topic:** Personal Budget
- ◆ **Grade Level:** 8 – 9
- ◆ **Prerequisites:** Students should be familiar with the concept of unlimited wants and limited resources. Students also should be familiar with constraints of a budget.
- ◆ **Total Teaching Time:** 50 minutes

Materials

- ◆ **Student Data Sheets:** Background Information, Vocabulary, Calculating the Cost of Living Instruction Sheet (optional), Calculating the Cost of Living – Data Collection
- ◆ **Debriefing Guide:** Activity 1
- ◆ TI-83 or TI-83 Plus
- ◆ Instructions for using the TI-83 or TI-83 Plus to calculate data

Activity Overview

Students will become familiar with the terms often used in discussing personal finance and budgeting. They will then use the newspaper's classified section to determine their future job and potential earnings. Using this information, students will complete the Student Data Sheet: **Calculating the Cost of Living – Data Collection**. Lastly, the students will reflect on the data collected.

Tip

Ensure that you have enough copies of the newspaper's classified section and the various Student Data Sheets: **Background Information, Vocabulary, Calculating the Cost of Living Instruction Sheet** (optional), and **Calculating the Cost of Living – Data Collection**. You may consider using the **Calculating the Cost of Living Instruction Sheet** as an overhead transparency versus providing as a handout.

Directions

Before the Activity Begins

Secure sufficient copies of the newspaper's classified section and the various Student Data Sheets: **Background Information**, **Vocabulary**, **Calculating the Cost of Living Instruction Sheet** (optional), and **Calculating the Cost of Living – Data Collection**. Distribute these materials to each student or group of students.

Because each student should have some knowledge of personal finance and how people purchase homes and cars using financing, review the **Background Information** and **Vocabulary** prior to beginning the activity. Also review the following questions with students:

- ◆ How long can a person finance a car?
- ◆ What determines the interest rate that a person pays on a car or house?
- ◆ What types of people or groups of people use budgets?
- ◆ What factors determine a budget?

During the Activity

Using the **Calculating the Cost of Living Instruction Sheet**, explain how to calculate entries for each section of the **Calculating the Cost of Living – Data Collection** worksheet. Avoid having students work ahead.

After the Activity

Lead a class discussion using the **Debriefing Guide for Activity 1**. Inform students that the next activity requires the use of their **Calculating the Cost of Living – Data Collection** worksheet.

Student Data Sheet
Background Information

Name: _____

Date: _____

Jobs/Careers

A job may pay more or less depending on the skill involved, the training involved, the level of education, and the amount of risk involved. Jobs that require a special skill (such as accurately throwing a football, painting beautifully, or singing in key) pay more than a job that anyone can do. Jobs that require special training such as repairing a computer or car, running an x-ray machine, or helping the doctor during surgery tend to pay better than a job that anyone can learn in a day. The higher the education a person earns, the higher their earning potential (doctors, nurses, teachers, engineers, lawyers, and so forth). Additionally, jobs that increase the risk of the employee being hurt such as fireman, police officers, and window washers on skyscrapers tend to pay better than many jobs.

Car Payments

Customers may adjust the payments on a car by opting to pay for the car over a shorter or longer period of time. This is called varying the term on the loan.

Mortgages

Financial institutions lend money to customers based on many factors. Some of these factors are how much money a person pays up-front (down payment), if the person pays their bills on time, and the amount of credit the person is already using.

Student Data Sheet

Vocabulary

Name: _____

Date: _____

Ensure that you understand the following basic concepts of personal finance and preparing a budget:

- ◆ **Budget:** The money a person plans to spend each month. Note that the money spent each month cannot exceed the income.
- ◆ **Resources:** Time, money, or natural resources (iron, steel, gold, silver, and so forth).
- ◆ **Unlimited Wants:** People have wants that will never be satisfied (bigger house, more expensive car, fancy boat, and so forth).
- ◆ **Limited Resources:** People are restricted to what they can buy because of income from their jobs.
- ◆ **Income:** The money that a person earns each month.
- ◆ **Annual Income:** The money that a person earns each year (12 months).
- ◆ **Gross Monthly Income:** The money that a person earns in a month before any money is taken out.
- ◆ **Net Monthly Income:** The actual pay that a person receives after taxes. For our purposes, 25% of the gross income is subtracted to find the net income.
- ◆ **Term:** The number of months that a person finances a car or house.
- ◆ **Interest Rate:** The amount of money that a financial institute charges to lend money.
- ◆ **Mortgage:** The money that is borrowed to buy a house. The buyer must pay this money back to the financial institute.
- ◆ **Total of Payments:** The amount of money actually paid back to the financial institution. You determine this number by multiplying the monthly payment by the term of the loan. Example: $\$350 \times 360 \text{ months} = \$126,000$.
- ◆ **Finance:** When a person borrows money from a financial institution and pays it back over a set amount of time. The financial institution charges interest on the money borrowed.

Student Data Sheet
Calculating the Cost of Living
Instruction Sheet

Name: _____

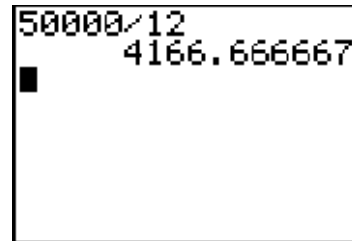
Date: _____

Directions for Calculating Gross and Monthly Income

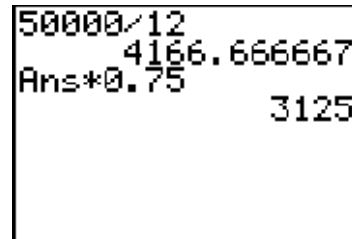
Determine whether the position pays annually or hourly.

- ◆ If the position pays annually, complete the following steps.

1. Obtain the gross monthly income.
 - a. Enter the annual salary (for example: \$50,000).
 - b. Press \div .
 - c. Enter 12.
 - d. Press **ENTER**.
2. Obtain the net monthly income.
 - a. Press \times .
 - b. Enter 0.75.
 - c. Press **ENTER**.



50000/12
4166.666667



50000/12
4166.666667
Ans*0.75
3125

Note that 0.75 is used to reflect the 25% subtracted from the gross monthly income. Refer to Student Data Sheet: **Vocabulary: Net Monthly Income.**

3. Record the information on the **Calculating the Cost of Living – Data Collection** worksheet.

- ◆ If the position pays hourly, complete the following steps.

1. Obtain the gross monthly income.
 - a. Enter the hourly rate (for example: \$10.00/hour).
 - b. Press $\boxed{\times}$.
 - c. Enter 40.
 - d. Press $\boxed{\text{ENTER}}$.
 - e. Press $\boxed{\times}$.
 - f. Enter 4.

10*40	400
Ans*4	1600
■	

2. Obtain the net monthly income.
 - a. Press $\boxed{\times}$.
 - b. Enter 0.75.
 - c. Press $\boxed{\text{ENTER}}$.

10*40	400
Ans*4	1600
Ans*0.75	1200

Note that 0.75 is used to reflect the 25% subtracted from the gross monthly income. Refer to Student Data Sheet: **Vocabulary: Net Monthly Income.**

3. Obtain the annual income.
 - a. Enter the value obtained in Step 1
 - b. Press $\boxed{\times}$.
 - c. Enter 12.
 - d. Press $\boxed{\text{ENTER}}$.

10*40	400
Ans*4	1600
Ans*12	19200
■	

4. Record the information on the **Calculating the Cost of Living – Data Collection** worksheet.

Directions for Calculating the Monthly Mortgage Payment

Ensure that the TI-83 or TI-83 Plus is turned on.

1. Press **APPS** to view the application menu. Use \uparrow \downarrow to highlight **Finance**.

```

APPS
1: Finance...
2: CBL/CBR
3: CalcSheet
4: Ct19Help
5: LearnChk
6: Organize
7↓PLAYER
  
```

2. Press **ENTER** to start the **Finance** application. Use \uparrow \downarrow to highlight **TVM Solver**.

```

APPS VARS
1: TVM Solver...
2: tvn_Pmt
3: tvn_I%
4: tvn_PV
5: tvn_N
6: tvn_FV
7↓nPV
  
```

3. Press **ENTER**.

```

N=
I%=0
PV=0
PMT=0
FV=0
P/Y=1
C/Y=1
PMT: [END] BEGIN
  
```

4. Populate the fields as shown to the right.

N = # of Months to Finance
 I% = Interest Rate
 PV = Price
 PMT = (leave 0)
 FV = (leave 0)
 P/Y = 12 Payments per Year
 C/Y = 12 Cycles per Year
 PMT = End of Month/
 Beginning of Month (Ensure
 that PMT: END is highlighted.)

```

N=360
I%=6
PV=150000
PMT=0
FV=0
P/Y=12
C/Y=12
PMT: [END] BEGIN
  
```

5. Position cursor in PMT field and press **ALPHA** **ENTER** to display the payment amount.

Note that the amount appears as a negative number to indicate an outflow of funds

```

N=360
I%=6
PV=150000
PMT=-899.32578...
FV=0
P/Y=12
C/Y=12
PMT: [END] BEGIN
  
```

indicate an outflow of funds.

6. Record the information on the **Calculating the Cost of Living – Data Collection** worksheet.
7. Repeat this process for the various interest rates listed on the **Calculating the Cost of Living – Data Collection** worksheet.

Directions for Calculating the Car Payment

To calculate the car payment, complete the steps outlined in the Directions for Calculating the Monthly Mortgage Payment section. The only differences are noted as follows:

- ◆ N value, which should be entered as 24, 36, and so forth... as listed on the **Calculating the Cost of Living – Data Collection** worksheet
- ◆ I% value, keep at 8% during this exercise
- ◆ PV value, which should be the consistent price of the car

Repeat this process for the various interest rates listed on the **Calculating the Cost of Living – Data Collection** worksheet.

Directions for Calculating the Total of Payments

Prior to beginning this exercise, clear the calculator (press **2nd** and **MODE**).

Calculate the total of all the payments by entering the monthly payment and pressing **⊗**. Then enter the term (months financed) and press **ENTER**.

Record the information on the **Calculating the Cost of Living – Data Collection** worksheet.

Repeat this process for the various interest rates listed on the **Calculating the Cost of Living – Data Collection** worksheet.

Student Data Sheet

Name: _____

Calculating the Cost of Living – Data Collection

Date: _____

Directions

Record your data on this worksheet when using the classified section of the newspaper and calculating income and payments using the TI-83 or TI-83 Plus. You must choose three different jobs, but keep the same house and car while calculating the payments.

Income

Position	Annual Income	Monthly Gross	Monthly Net
#1			
#2			
#3			

House Payment

Price of House	Interest Rate	Term	Payment	Total of Payment
	6%	360		
	8%	360		
	10%	360		
	12%	360		

Car Payment

Price of Car	Interest Rate	Term Payment	Total of Payment
	8%	24	
	8%	36	
	8%	48	
	8%	60	
	8%	72	

Debriefing Guide for Activity 1

Name: _____

Date: _____

Be sure to ask the following questions:

- ◆ What types of jobs did you choose? Why?
- ◆ Did the skill level, special training, education required, or risk of these jobs seem to change the rate of pay?
- ◆ Would you rather receive the gross monthly income or the net monthly income? Why?
- ◆ How did financing the car over a longer period of time affect the monthly payment?
- ◆ How did financing the car over a longer period of time affect the total of payments on the car?
- ◆ What was the difference in monthly payments on the house at 6% and 8%?
- ◆ What was the difference between the total of payments at 8% and 12%?