

**Lesson Description**

This lesson focuses on the various sources people use for borrowing money or using credit. Some people, especially those who do not know all their options, borrow money from lenders who charge very high interest rates. The purpose of this lesson is to show students, as they enter the world of credit and borrowing, just what options they have.

Students will learn that the Annual Percentage Rate is used to compare interest rates. They will learn how to use online calculators to determine the repayment amount for loans and credit cards.

**Texas Essential Knowledge and Skills (Target standards)**

- **PFL Math 8.12A:** solve real-world problems comparing how interest rate and loan length affect the cost of credit
- **PFL Math 8.12B:** calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an online calculator

**Texas Essential Knowledge and Skills (Prerequisite standards)**

- **Math 8.1A:** apply mathematics to problems arising in everyday life, society, and the workplace

**National Standards (Supporting standards)**

- **CEE Using Credit 8.2:** The longer the repayment period on a loan and the higher the interest rate on the loan, the larger is the total amount of interest charged on a loan.
- **CEE Using Credit 8.3:** A credit card purchase is a loan from the financial institution that issued the card. Credit card interest rates tend to be higher than rates for other loans. In addition, financial institutions may charge significant fees related to a credit card and its use.
- **CEE Using Credit 8.4:** Borrowers who use credit cards for purchases and who do not pay the full balance when it is due pay much higher costs for their purchases because interest is charged monthly. A credit card user can avoid interest charges by paying the entire balance within the grace period specified by the financial institution.
- **CEE Using Credit 8.5:** Various financial institutions and businesses make consumer loans and may charge different rates of interest.

CEE - Council for Economic Education

**PFL Terms**

- Interest rate
- Easy access loan
- APR (Annual Percentage Rate)
- Pay day loan
- Car title loan
- Loan term
- Credit card

**Time Required**

Two 45-minute class periods

**Materials Required**

- A copy of **Visual 8.2-1** for each student
- A copy of **Activity 8.2-1** for each student
- A copy of **Activity 8.2-2** for each student
- A copy of **Activity 8.2-3** for each student
- A calculator for each student
- An index card for each student
- A computer with Internet capabilities

**Procedure****Engage**

1. Tell students that in Lesson 1, we studied the benefits of compound interest when someone saves money. What is compound interest? (***Compound interest is the interest that is earned not only on the principal but also on the interest already earned.***) The financial institution will pay a saver money because the saver puts money in a savings account. Now the financial institution is able to loan the saver's money to a borrower and charge a higher interest rate. Today we are going to learn about the cost of borrowing money. What are different ways you can borrow money? (***Sample responses: You can get a loan from a bank or a credit union. You can get an auto loan from the auto dealership. When you use your credit card you are borrowing money. You can get a loan on your house which is called a mortgage.***)

2. Direct students to take out a sheet of paper and a writing instrument. Read the scenario below.

*When Joaquin sat down to negotiate his auto loan with the dealership, he was told that he could borrow \$15,000 at 6% interest for 3 years. His payments would be \$456 per month. Joaquin explained that he could not afford \$456 per month and he wanted a better deal. The car dealer agreed to give Joaquin a better deal. He told him that he could bring down his monthly payments to \$289 per month for 5 years.*

3. Ask students to write down if they think this was a better deal and to explain why. After one minute have students share their answer and rationale with a partner. Then have a few students explain their answers. (**Sample responses: No. \$289 for 5 years is 60 payments which is a total repayment cost of \$17,340. \$456 for 3 years is 36 payments which is a total of \$16,416. Joaquin will pay \$924 more with the second option. The dealership never said they would lower the interest rate.**)

**Explain**

4. Explain that for some people, making a lower payment is more important than getting a better deal. However, everyone should know exactly what they will pay for borrowing money. Display **Visual 8.2-1**. Tell students that these are the 3 things they should know about loans. *What is the APR (Annual Percentage Rate)? How does the interest rate affect the cost of credit? How does the loan length affect the cost of credit?*

**Explain**

5. Distribute **Activity 8.2-1** to each student and display as a visual. Read the introductory paragraph.

*According to [www.investopedia.com](http://www.investopedia.com), Annual Percentage Rate is the annual rate that is charged for borrowing (or made by investing), expressed as a single percentage*

number that represents the actual yearly cost of funds over the term of a loan. This includes any fees or additional costs associated with the transaction. Since each lender has different loan terms, the federal government requires lenders to disclose the APR. Bottom line: Always ask for the APR when getting a loan.

6. Have the students underline or highlight this part of the paragraph: *a single percentage number that represents the actual yearly cost*. Explain that to accurately compare interest rates, it is important to know the APR (Annual Percentage Rate). Since each lender has different loan terms, the federal government requires lenders to disclose the APR. Bottom Line: Always ask for the APR when borrowing money. Ask: *Which do you think will give a better deal; one with a high APR or a low APR? (Low APR. When taking the percent of a number or value, a small percent will always result in a smaller value than a higher percent. In the case of the APR, this would be the interest paid by the borrower.)*

### Explore

7. Have students look at the table on **Activity 8.2-1**. Then explain the details of the table listed below.
- The second column is an example of a common small loan that a financial institution might offer. The third column is an example of an easy access loan. These loans are sometimes called title loans or payday loans. They make it “easy” to get a loan.
  - Point out that both of these loans are for \$1000. The first loan will be paid back monthly over 12 months. The second one will be paid back in 14 days.
  - This particular common small loan charges 7% and this particular easy access loan charges a \$300 fee. The APR for the common loan is 7.22%. The calculation to get the APR is complicated, but the difference between 7% and 7.22% percentages comes from the way it was compounded. Which do you think would charge more interest: 7% compounded monthly or 7% compounded annually? **(Compounded monthly, because interest is compounded every month.)** To accurately compare these two compound methods, you should ask for the APR.
  - What is the APR of the easy access loan? **(782%)** The high cost is due to the short time period of the loan and the fee. Again, this is a complicated calculation that you will not be required to learn. What is the bottom line? **(Ask for the APR when getting a loan. Federal law requires that lenders provide this to you.)** [Teacher note: For easy access loan APR calculations go to <http://www.csgnetwork.com/apr4calc.html>]
8. Explain that another method to compare loans is to calculate the total amount to be repaid to the lender. Ask students to calculate the repayment for the common small loan. **(Common small loan =  $\$86.63 \times 12 = \$1039.56$ .)** Point out that the payment for the easy access loan is blank. Ask: *Why do you think it is blank? (The entire amount borrowed and the financial fee is due in 14 days.)* What is the payment for the easy access loan? **(Easy access loan =  $\$300 + \$1000 = \$1300$ .)** Fill in the table as the values are discussed.

9. Point out that if the easy access loan cannot be paid back in 14 days, another \$300 is charged. This will result in an APR of 1,564.28%. [Calculation completed at: <http://www.csgnetwork.com/apr4calc.html>.]
10. Have the students answer the questions below the table with a partner.
11. When students have completed the activity, have a few students share their answers.

**Explore**

12. Take students to a computer lab with Internet capabilities. Distribute **Activity 8.2-2** and a calculator to each student.
13. Tell students to go to <http://www.bankrate.com/>. Locate the list of calculators in the middle of the screen. Explain to students that when a person borrows money, each month's payment pays down the principal borrowed and interest for borrowing money. As the loan is paid down over a period of time, the principal is reduced. In other words, the amount of money owed to the financial institution decreases. This process in which the amount owed on the principal decreases is called Amortization. Click on the "Loan calculator and Amortization" located with the list of calculators.
14. Enter the data from the tables into the online calculator to determine the monthly payment. Demonstrate the first row. Then have students use their handheld calculator to calculate the total repayment and the interest paid. This is a self-directed lesson. Allow students to work independently or with a partner. The teacher should circulate and monitor progress. When students have completed the activity, have the students share their answers.
15. Give each student an index card. Ask them to write 3-4 important tips about loans that they would like to share with their guardian or parent. Then have a few students share these tips. **(Use <http://www.bankrate.com/> to calculate total loan repayment. Always ask for the APR when applying for a loan. APR is the percentage that should be used to compare loans. The higher the APR, the more interest will be paid on a loan. The longer the loan term with the same APR, the more interest will be paid on a loan.)** Hang these tips on chart paper or bulletin board.
16. Ask students to share what they know about credit cards. **(When you use a credit card to purchase an item, you are borrowing money from the credit card company. Some credit cards have an annual fee. If you don't pay the minimum payment by the grace period, you will be charged a late fee. If you don't pay off the balance by the grace period, you will pay interest. The grace period is typically 1-2 weeks after receiving the credit card statement. There is a minimum you must pay towards the balance each month.)**

**Elaborate**

17. Take students to a computer lab with Internet capabilities. Distribute **Activity 8.2-3** and a calculator to each student. Tell student to go to <http://www.bankrate.com/>. Locate the list of calculators in the middle of the screen. Click on the "Credit card payoff calculator" located with the list of calculator.

18. Tell students that in this lesson we will investigate the interest paid on a credit card if the balance is not paid off by the grace period. Direct them to take out a sheet of paper and number 1-3. Tell them that you are going to read some incomplete statistics and they are to guess the correct number.
- 1) The average credit card debt for 2012 was \_\_\_\_\_. (**\$15,204**)
  - 2) The average credit card interest rate for 2012 was \_\_\_\_\_. (**16.98%**)
  - 3) The average credit card interest rate for students over 18 was \_\_\_\_\_. (**17.42%**)
19. Have students share their guesses and record these on the board. Then share the actual data. Ask the students, how long do you think it would take to pay off \$15,204 at 17.42% interest if the card holder made no additional purchases and paid \$300 per month? Record their guesses on the board. Then have students enter these numbers into the credit card payoff calculator. (**92 months**)
20. *If the credit card holder decided today to make the \$300 payment every month for 92 months and decided not to make any additional charges on this card, what is the total this person would pay? ( $\$300 \times 92 = \$27,600$ ) How much more is this than the original debt? (**\$12,396**) What does \$12,396 represent? (**Interest paid**)* Point out that there was most likely additional interest paid prior to this day.
21. Ask students how this person could reduce his total repayment? (**Pay more per month.**) [Note to teacher: A few students may understand that they can ask the credit card company to reduce the interest or transfer the balance to a credit card with a lesser interest rate.]
22. *Say: Let's say he decides that he can pay \$450 per month if he cancels his cable for television. How much do you think he could save?* Record students' guesses on the board. Then ask students to do the calculations. Instruct them to give a detailed explanation of the process they used to determine his savings. They should then raise their hand when they think they have the correct process and answer. (**See sample response below.**)
- a. First, I entered \$15,204 for credit card balance, \$17.42 for interest rate and \$450 payment amount per month on the credit card payoff calculator. The result was 47 months to pay off the balance.
  - b. I then multiplied  $\$450 \times 47$  months = \$21,150. This is the total repayment.
  - c. Since the payoff for the \$300 month was \$27,600, I subtracted \$21,150 from this amount. The difference is \$6450. This is the amount the card holder would save by increasing the monthly payment by \$150.
23. If they have the correct answer and have the correct process, direct them to complete **Activity 8.2-3**. For those who have incorrect answers, have student verbally explain their process. If it is incorrect guide them to the correct answer.

**Evaluate/End**

24. To close this lesson, pose the questions below.

- a. What percentage is used to compare loan rates? (**APR**)
- b. What might cause a loan to have a high APR? (**short loan term and fees**)
- c. How can someone easily calculate loan repayment? (**Online calculators such as Bankrate.com**)
- d. What factors might increase the total repayment of a loan? (**interest rate and length of loan**)
- e. What is an easy access loan? (**It is a quick loan that has a short loan length and fees. They are sometimes called payday loans or auto title loans.**)

**Extension:** Governmental agencies and consumer watch groups are very concerned about the trouble consumers can get themselves into by getting easy access loans. Have the students visit these websites to see what these groups say about such loans:

<http://www.consumer.ftc.gov/articles/0097-payday-loans>

<http://usgovinfo.about.com/od/consumerawareness/a/paydayloans.htm>

<http://www.responsiblelending.org/other-consumer-loans/car-title-loans/>

<http://consumerfed.org/pdfs/Car Title Loan Report 111705.pdf>

<http://library.cppp.org/research.php?aid=754>

After visiting these websites, have students make a list of the risks revealed.

Then, have students visit some of these websites in which easy access loans are advertised.

For each website, ask students to note the following:

- a. All of these companies want your business. How does the overall look of the website make a person want to do business with this company? That is, what pictures do they use, and what kinds of statements do they make to make?
- b. What do the pictures they use tell you about the people they are trying to target as potential customer? That is, who do they seem to think their primary customers are?
- c. What do easy access loan institutions require to get approval for a loan from them?
- d. Does each website explain the risks involved in borrowing money?
- e. How do they disguise their high interest rates and make them seem more reasonable? What are they NOT telling the consumer?

**Visual 8.2-1****Three Things You Should Know About Loans**

- What is the APR (Annual Percentage Rate)?
- How does the interest rate affect the cost of credit?
- How does the loan length affect the cost of credit?



**Activity 8.2-1**

Name \_\_\_\_\_ Class Period \_\_\_\_\_

**Decoding Loans with APR**

According to Investopedia, “The annual rate that is charged for borrowing (or made by investing), expressed as a single percentage number that represents the actual yearly cost of funds over the term of a loan. This includes any fees or additional costs associated with the transaction.” [Source: <http://www.investopedia.com/terms/a/apr.asp>]

Bottom line: **Always ask for the APR when getting a loan.**

	<b>Common Small Loan</b>	<b>Easy Access Loan</b>
Loan Amount	\$1,000	\$1,000
Term	12 months	14 days
Interest Rate	7%	n/a
Financial Fee	n/a	\$300*
<b>Annual Percentage Rate</b>	<b>7.22%</b>	<b>782%</b>
Payment	\$86.63 per month	
Total Interest/Fees		

\*1st 14 day fee is \$300, if renewed an additional \$300 fee is required.

1. How much did each lender charge for borrowing \$1000? \_\_\_\_\_

\_\_\_\_\_

2. Explain which loan is a better deal? \_\_\_\_\_

\_\_\_\_\_

3. In order for the easy access loan to have a lower APR than the common small loan, what would have to change? Explain. \_\_\_\_\_

\_\_\_\_\_



## Key 8.2-1

Name \_\_\_\_\_ Class Period \_\_\_\_\_

**Decoding Loans with APR**

According to Investopedia, “The annual rate that is charged for borrowing (or made by investing), expressed as a **single percentage number that represents the actual yearly** cost of funds over the term of a loan. This includes any fees or additional costs associated with the transaction.” [Source: <http://www.investopedia.com/terms/a/apr.asp>]

Bottom line: **Always ask for the APR when getting a loan.**

	<b>Common Small Loan</b>	<b>Easy Access Loan</b>
Loan Amount	\$1,000	\$1,000
Term	12 months	14 days
Interest Rate	7%	n/a
Financial Fee	n/a	\$300*
<b>Annual Percentage Rate</b>	<b>7.22%</b>	<b>782%</b>
Payment	\$86.63 per month	<u>\$1300</u>
Total Interest/Fees	<u>\$1039.56</u>	<u>\$1000 + \$300 = \$1300</u>

\*1st 14 day fee is \$300, if renewed an additional \$300 fee is required.

1. How much did each lender charge for borrowing \$1000? (The common small loan company charged \$39.56. The easy access loan charged \$300.)
2. Explain which is a better deal? The common small loan because it has a lower APR.
3. In order for the easy access loan to have a lower APR than the common small loan, what would have to change? Explain. (The financial fee would have to be less than \$39.56. If an APR of 7.22% results in a fee or interest of \$39.56, any smaller amount would have a smaller APR.)

**Activity 8.2-2**

Name \_\_\_\_\_ Class Period \_\_\_\_\_

Directions: On your computer, go to [www.bankrate.com](http://www.bankrate.com). Locate the list of calculators in the middle of the screen. Click on the "Loan calculator and Amortization" located with the list of calculator. Enter the data from the tables into the online calculator to determine the monthly payment. Use your handheld calculator to calculate the total repayment and the interest paid. Then answer the questions on the next page.

**Loan Calculations**

Loan Amount	Loan Term	Interest Rate per year (APR)	Monthly Payment	Total Repayment	Total Interest Paid
\$10,000	2 years	5%			
\$10,000	3 years	5%			
\$10,000	4 years	5%			

- To help analyze the table, you will need to calculate the last two columns using a calculator. First, explain the process below that you would use to calculate the Total Repayment and the Total Interest Paid. Then, check with your teacher. When your teacher approves your process, complete the last two columns.

Total Repayment = \_\_\_\_\_

Total Interest Paid = \_\_\_\_\_

- How much more interest was paid when the loan term increased from 2 years to 3 years? \_\_\_\_\_
- How much more interest was paid when the loan term increased from 3 years to 4 years? \_\_\_\_\_
- How much more interest was paid when the loan term increased from 2 years to 4 years? \_\_\_\_\_
- In your own words, explain what this table reveals? \_\_\_\_\_

Directions: On your computer, go to [www.bankrate.com](http://www.bankrate.com). Locate the list of calculators in the middle of the screen. Click on the "Loan calculator and Amortization" located with the list of calculator. Enter the data from the tables into the online calculator to determine the monthly payment. Use your handheld calculator to calculate the total repayment and the interest paid. Then answer the questions on the next page.

### Loan Calculations

Loan Amount	Loan Term	Interest Rate per year	Monthly Payment	Total Repayment	Total Interest Paid
\$10,000	3 years	4%			
\$10,000	3 years	7%			
\$10,000	3 years	10%			

6. How much more interest was paid when the interest rate increased from 4% years to 7%? \_\_\_\_\_
  7. How much more interest was paid when the interest rate increased from 7% years to 10%? \_\_\_\_\_
  8. How much more interest was paid when the interest rate increased from 4% years to 10%? \_\_\_\_\_
  9. In your own words, explain what this table reveals? \_\_\_\_\_
-

## Key 8.2-2

Name \_\_\_\_\_ Class Period \_\_\_\_\_

Directions: On your computer, go to [www.bankrate.com](http://www.bankrate.com). Locate the list of calculators in the middle of the screen. Click on the "Loan calculator and Amortization" located with the list of calculator. Enter the data from the tables into the online calculator to determine the monthly payment. Use your handheld calculator to calculate the total repayment and the interest paid. Then answer the questions on the next page.

## Loan Calculations

Loan Amount	Loan Term	Interest Rate per year (APR)	Monthly Payment	Total Repayment	Total Interest Paid
\$10,000	2 years	5%	\$438.71	\$10,529.04	\$529.04
\$10,000	3 years	5%	\$299.71	\$10,789.56	\$789.56
\$10,000	4 years	5%	\$230.29	\$11,053.92	\$1,053.92

- To help analyze the table, you will need to calculate the last two columns using a calculator. First, explain the process below that you would use to calculate the Total Repayment and the Total Interest Paid. Then, check with your teacher. When your teacher approves your process, complete the last two columns.

Total Repayment = number of years x 12 months x monthly payment

Total Interest Paid = total repayment – loan amount

- How much more interest was paid when the loan term increased from 2 years to 3 years?  
\$260.52
- How much more interest was paid when the loan term increased from 3 years to 4 years?  
\$264.36
- How much more interest was paid when the loan term increased from 2 years to 4 years?  
\$524.88
- In your own words, explain what this table reveals? Increasing the length of the loan will increase the interest paid.

Directions: On your computer, go to [www.bankrate.com](http://www.bankrate.com). Locate the list of calculators in the middle of the screen. Click on the “Loan calculator and Amortization” located with the list of calculator. Enter the data from the tables into the online calculator to determine the monthly payment. Use your handheld calculator to calculate the total repayment and the interest paid. Then answer the questions on the next page.

### Loan Calculations

Loan Amount	Loan Term	Interest Rate per year	Monthly Payment	Total Repayment	Total Interest Paid
\$10,000	3 years	4%	\$295.24	\$10,628.64	\$628.64
\$10,000	3 years	7%	\$308.77	\$11,115.72	\$1,115.72
\$10,000	3 years	10%	\$322.67	\$11,616.12	\$1,616.12

6. How much more interest was paid when the interest rate increased from 4% years to 7%?  
\$487.08
7. How much more interest was paid when the interest rate increased from 7% years to 10%?  
\$500.40
8. How much more interest was paid when the interest rate increased from 4% years to 10%?  
\$987.48
9. In your own words, explain what this table reveals? Increasing the interest rate will increase the interest paid.

## Activity 8.2-3

Name \_\_\_\_\_ Class Period \_\_\_\_\_

Directions: On your computer, go to [www.bankrate.com](http://www.bankrate.com). Locate the list of calculators in the middle of the screen. Click on the "Credit card payoff calculator." Use this calculator to answer the questions below.

## Credit Card Payoff Calculator

<p>1. Janelle has a credit card balance of \$6444. The interest rate for this card is 16.8%. If she wants to pay it off in 12 months, how much should she pay each month?</p>	<p>2. Webster is paying 18.6% interest on his credit card. His credit card balance is \$782. His sister is paying 9% interest and her balance is \$888. They are both paying \$40 per month. Who will have the greatest repayment? Explain your answer.</p>
<p>3. Hiro has a credit card balance of \$11,900. The interest rate on this card is 19%. He can only pay \$200 per month. Therefore Hiro transfers his balance to another credit card that charges 11% interest. How much will he save by changing to this new card?</p>	<p>4. Catalina has a credit card balance of \$4234. The interest rate on this card is 15%. Currently, she has budgeted to pay \$75 per month. Her brother told her that if she would give up her weekly manicure, she could increase her monthly payment to \$175. How much will she save if she takes her brother's advice?</p>

5. You have been asked by the school newspaper to write an article titled, *Everything You Should Know about Credit Cards*. What are 3 things you would include in the article?

## Key 8.2-3

Name \_\_\_\_\_ Class Period \_\_\_\_\_

Directions: On your computer, go to [www.bankrate.com](http://www.bankrate.com). Locate the list of calculators in the middle of the screen. Click on the "Credit card payoff calculator." Use this calculator to answer the questions below.

## Credit Card Payoff Calculator

<p>1. Janelle has a credit card balance of \$6444. The interest rate for this card is 16.8%. If she wants to pay it off in 12 months, how much should she pay each month?</p> <p><u>\$587.11</u></p>	<p>2. Webster is paying 18.6% interest on his credit card. His credit card balance is \$782. His sister is paying 9% interest and her balance is \$888. They are both paying \$40 per month. Who will have the greatest repayment? <u>Webster's sister</u> Explain your answer. <u>Webster: 24 months x \$40 = \$960</u> <u>Sister: 25 months x \$40 = \$1000</u></p>
<p>3. Hiro has a credit card balance of \$11,900. The interest rate on this card is 19%. He can only pay \$200 per month. Therefore Hiro transfers his balance to another credit card that charges 11% interest. How much will he save by changing to this new card?</p> <p><u>Card 1: 179 months x \$200 = \$35,800</u> <u>Card 2: 87 months x \$200 = \$17,400</u> <u>Savings: \$18,400</u></p>	<p>4. Catalina has a credit card balance of \$4234. The interest rate on this card is 15%. Currently, she has budgeted to pay \$75 per month. Her brother told her that if she would give up her weekly manicure, she could increase her monthly payment to \$175. How much will she save if she takes her brother's advice?</p> <p><u>\$75 payment: 98 months x \$75 = \$7,350</u> <u>\$175 payment: 29 months x \$175 = \$5,075</u> <u>Savings: \$2,275</u></p>

5. You have been asked by the school newspaper to write an article titled, *Everything You Should Know about Credit Cards*. What are 3 things you would include in the article?

Sample Responses:

- The more you pay each month, the less interest you will pay in the long run.
- Use an online credit card payoff calculator so you know exactly how much interest you will pay.
- The greater the interest rate, the more you will pay.
- Interest rates on credit card calculators are very high. If you don't pay off your credit card every month, you will pay interest.