LESSON 14

All About Interest

LESSON DESCRIPTION AND BACKGROUND

To compare the cost of different loans, students must understand finance charges and interest rates. In this lesson, the students learn how to compute finance charges, how to differentiate between add-on and annual percentage rates, and how the annual percentage rate and loan repayment period affect the cost of a loan.

Lesson 14 correlates with national standards for economics and personal finance as shown in Tables 1-2 in the introductory section of the publication.

ECONOMIC AND PERSONAL FINANCE CONCEPTS

- Add-on interest rate
- Annual percentage rate (APR)
- Finance charge
- Interest rates

OBJECTIVES

At the end of this lesson, the student will be able to:

- Describe the factors that determine the cost of credit.
- Describe the differences between an **add-on** and an **annual percentage rate**.
- Calculate **finance charges**, using different **interest rates**
- Calculate **APRs**, given different finance charges and loan repayment periods.
- Analyze relationships among the finance charge, principal of the loan, APR, and loan repayment period.

TIME REQUIRED

One 45-minute class period

MATERIALS

- A transparency of **Visual 14.1**
- A copy for each student of **Exercise 14.1** from the *Student Workbook*
- Small prizes for the **Assessment** activity

ADDITIONAL RESOURCES

To download visuals, find related lessons, correlations to state standards, interactives, and more visit http://fffl.councilforeconed.org/9-12/lesson14.

PROCEDURE

1. Tell the students that this lesson will help them understand how to identify loans with low interest costs. The lesson involves lots of math, which could help the students save thousands of dollars in interest over their lifetimes.

2. Give each student a copy of **Exercise 14.1** from the *Student Workbook*. Ask students to read through Part 1. Be sure to go over the formula FC=PRT, which is used to calculate finance charges. Ask the students to complete Part 1, answering questions a-f. Go over the answers in class.

a. Gabrielle Daily borrows $1,000 at a 6 percent add-on rate for one year. What is the finance charge? ***($60)***

b. Jesse Candelaria borrows $2,000 at a 10 percent add-on rate for three years. What is the finance charge? ***($600)***

c. Jessica Tate borrows $2,000 at a 10 percent add-on rate for two years. What is the finance charge? ***($400)***

d. Travis Whitaker borrows $2,000 at an 8 percent add-on rate for two years. What is the finance charge? ***($320)***

e. If you want to lower the finance charge, should you shop for a higher or lower interest

rate? ***(Lower.)*** Why? ***(The interest will be less each year.)***

f. If you want to reduce the finance charge, should you pay back the loan more quickly or less quickly? ***(More quickly.)*** Why? ***(The more quickly the loan is paid off, the shorter your borrowing period and the lower the finance charge.)***

3. Go over the formula MP = (P + FC)/N in Part 2 of **Exercise 14.1**. This formula is used to calculate the monthly payment on a loan. Have the students read Part 2 of **Exercise 14.1** and answer questions a-e. Go over the answers in class.

a. David Kim borrows $8,000 at an 8 percent add-on rate for two years. What is the finance charge? ***($1,280)*** What is the monthly payment? ***($386.67)***

b. Maria Torres borrows $8,000 at an 8 percent add-on rate for four years. What is the finance charge? ***($2,560)*** What is the monthly payment? ***($220)***

c. If a borrower takes longer to pay back a loan, what happens to the monthly payment? ***(It is lower.)***

d. If a borrower takes longer to pay back a loan, what happens to the total finance charge? ***(It is higher.)***

e. What are the costs and benefits of taking longer to pay off a loan? ***(With a longer payoff period, it is easier to make the monthly payments, but the total interest cost is higher. In this case, the cost of the 48-month loan was $2,560, twice the cost of the 24-month loan.)***

4. Ask the students to read Part 3 of **Exercise 14.1**. Discuss the Truth in Lending Law and the formula for computing the APR in Part 3. Because lenders must state the APR, students might think they shouldn't have to compute it. However, although the APR must be stated in a credit contract, lenders may state only an add-on rate or even a monthly rate. This is why students should understand exactly what an APR is. Understanding APR is the purpose of this activity. Have the students answer the questions at the end of Part 3 of the exercise. Discuss the answers in class.

a. Lisa Rosas borrows $5,000 at a 5 percent add-on rate for one year. What is the finance charge? ***($250)*** What is the APR? ***(9.2%)***

b. Brett Olson borrows $6,000 for three years at a 7 percent add-on rate. What is the finance charge? ***($1,260)*** What is the APR? ***(13.6%)***

c. What is the relationship between an APR for an add-on rate for a one-payment loan compared to an APR for an add-on rate on a monthly installment loan? ***(The APR on the one-payment loan is substantially less than the APR for the monthly installment loan. In this case it is just less than double the add-on rate.)***

CLOSURE

Use the following questions to review the lesson:

- What is the principal of a loan? ***(The amount of money borrowed or the amount of a loan that is left to be repaid, not including any finance charges.)***
- What is the finance charge on a loan? ***(The amount of interest paid, stated in dollars.)***
- What is the APR? Why is it important? ***(APR stands for the annual percentage rate, which is the percentage of the principal that is paid in interest in a year. It is the best figure to use when comparing the cost of loans.)***
- What is the difference between an APR and an add-on interest rate? ***(An add-on rate assumes that the borrower has the original principal of the loan for the entire loan period. An APR is calculated on the declining balance of the loan or only the principal that is still to be paid off.)***
- How can a borrower reduce the finance charge on a loan? ***(Shop for a low APR and pay off the loan as quickly as possible.)***

ASSESSMENT

Divide the class into teams of three students each. Display **Visual 14.1** on the overhead and show the problems. Have the groups calculate the answers to all the problems. The winning team is the one that calculates the correct answers in the shortest period of time. Award that team a small prize.

Here are the answers to the problems:

1. ***$240***

2. ***$960***

3. ***a. $1,680***
   b. $570

4. ***a. $1,350***
   b. $176.39
   c. 17.5%

5. ***a. $3,000***
   b. $375
   c. 9.8%

EXTENSION

Have the students go to an online payments calculator and compare the monthly fixed payment that must be made on an auto loan when (a) the interest rate is varied, and (b) the repayment period is varied. Ask the students to confirm the relationship among the interest rate, the repayment period, and the monthly payment. Ask them to use the amortization table that is usually available for these payment calculators to determine the total interest paid in the different scenarios.

Interest Rate Problems

1. Jim Smith borrowed $2,000 at a 6% add-on rate for two years.

What is the finance charge?

2. Alex Rolando borrowed $4,000 at an 8% add-on rate for three years.

What is the finance charge?

3. Ann Fong borrowed $12,000 at a 7% add-on rate for two years.

a. What is the finance charge?

b. What is the monthly payment?

4. Michelle Ward borrowed $5,000 at a 9% add-on rate for three years.

a. What is the finance charge?

b. What is the monthly payment?

c. What is the APR?

5. Julie Freshwater borrowed $15,000 at a 5% add-on rate for four years.

a. What is the finance charge?

b. What is the monthly payment?

c. What is the APR?