MATH: Loan Repayments Using Simple Interest

How much does it cost to borrow money? As a consumer, you'll need to know about interest to use a credit card, borrow money, or buy a house! In this activity, you will explore the two factors that affect the cost of borrowing money: interest rate and length of time to repay in years.

Math Topics
● Evaluating multi-step expressions   ● Simple interest

Personal Finance Topics
● Credit cards   ● Loan payments

EdPuzzle Video

Part I: Examples

Example 1:
Alex charged his textbooks, clothes, and some downloads on his credit card. He received a bill from his credit card company for $1000. The interest rate on his card is 21%. He is going to pay it off in 3 monthly payments. He wants to know how much this loan will cost him in interest.

Substitute these numbers into the formula: **I = Prt**

I = Interest   **P = Principal**   **r = rate (decimal form)**   **t = time (years)**

Step 1: Identify Values from the word problem and label using the formula

Loan amount	$1000	=	Principal	$1000
Loan term	3 months	**=**	**Time (years)**	3/12 = .25 yrs
Interest rate	21% per year	**=**	**rate(decimal)**	0.21

Step 2: Substitute values into the formula

$$I = Prt$$
$$I = 1000 \times (.21) \times (.25)$$
$$I = \$52.50$$

Solution: The interest on Alex's credit card is $52.50.

MATH: Loan Repayments Using Simple Interest

Part II: Practice Problems

Complete the following practice problems and show your work in the space provided. Then, write your final solution in the answer boxes.

Question 1	Answer
Barry wants to take out a loan from his bank for $1,000 to buy a bicycle. The interest rate on the loan from the bank is 9%. He wants to pay the total amount in 3 monthly payments. What is the amount that Barry would pay in interest for his loan?	$22.5

Question 2	Answer
Barry also looks into the cost of repaying an easy access loan for $1,000. The up-front cost of the loan is $3 for every $20 borrowed, plus the original $1,000. How much will this loan cost Barry in interest?	$150

Question 3	Answer
The cost of interest of a $500 loan for 12 months is $21.88. What is the interest rate charged for the loan per year?	4.376%

Question 4	Answer
The cost of interest of a $3,000 loan at 12% interest per year is $720. What is the term length for this loan in years?	2 years

Part III: Reflection

5. Refer back to EXAMPLE 1. If Alex had saved $333.34 a month for 3 months, how much money would he have? If he had saved up money over time instead of using his credit card at 21% interest, how much less would his purchases have cost him?

> His purchase would have cost him $52.5 less, because if he saves up the money, he can get $1000 and pay off the full amount, so he gets no added interest

6. Refer back to QUESTION 1. How much less did Barry's loan, at an interest rate of 9%, cost than Alex's loan at 21%?

> Barry paid $30 less then alex

7. In addition to the interest you owe to borrow the money, hypothesize what other costs there may be when you take out a loan.

> There may be a fee that I have to pay, or there might be a required downpayment.

8. Explain how INTEREST RATE and TIME affects the cost of borrowing money.

> The interest rate is the percentage that the loan increases each year, so the higher the interest rate then the higher the interest.
> The time is how long the money gains interest, and so it also increases the interest if time is increased.