

Calculating Interest—A Financial Education Lesson Plan

Grade Level: 6-12

Rationale:

Debt is a leading stressor in a majority of Americans' lives. Understanding how loans can cost far more than the product being purchased, students benefit from experience in calculating interest. From 30 year mortgages to short term, high interest payday loans, students can become better decision makers when managing their money. A deeper understanding of the numbers and concepts that go into loans and interest can strengthen students' financial future.

Illinois Learning Standards:

SS.EC.FL.1.3. Describe the role of banks and other financial institutions in an economy.

SS.EC.FL.2.3. Explain that when people borrow, they receive something of value now and agree to repay the lender over time.

SS.EC.FL.1.4. Analyze how spending choices are influenced by price as well as many other factors (e.g., advertising, peer pressure, options).

SS.EC.FL.1.5. Explain that interest is the price the borrower pays for using someone else's money.

Objectives:

1. Students will calculate simple interest using the formula $I=P*R*T$
2. Students will be calculate different aspects of "missing information" in $I=P*R*T$
3. Students will create their own scenarios that demonstrate understanding of simple interest.

Procedure: (approximate time in parenthesis)

1. Remind students that they will be needing their calculators today.
2. Take attendance. The seating chart is on my desk along with the attendance forms. (2 minutes)
3. Inform students that they will be practicing calculating simple interest. Ask students to explain why an individual would want to take out a loan when it would cost them more to pay off. (3 minutes)
4. **Have students take out sheet from yesterday titled "Calculating Interest"** There are a few extra on the desk. Have students work through the examples at the bottom. Work through examples with them. (10 minutes)
5. Once you are comfortable that they have the concept, **hand out to students the sheet titled "Calculating Interest—Some more Practice"**. Have students try the chart at the top. They may have difficulty working the second half of the chart. Explain that instead of multiplying, they take the interest, divide it by the years, then divide that by the principal. This may take them some time to get through. This portion will probably take about 15 minutes. Work through each equation with students. (15 minutes)
6. Move to the scenario near the bottom of "Calculating Interest—Some more practice". Have them read and work through scenario. They may explain to one another and to the class which Bank, #1 or #2, they would suggest. Their answer depends on if they are interested in total payment or monthly cost. (10 minutes)

7. Have students write their own scenarios based off the model just completed. They may work with one another, if they stay to task. (10 minutes).
8. With any remaining time, they can describe their scenarios and have other students calculate their answers. (until end of class)
9. Inform students we will be talking about this tomorrow. They are expected to bring this sheet to class, with any questions. Dismiss students at proper time.

Calculating Interest

Interest is the money that you pay to buy time. If you need money, but don't have enough, a bank will give you a loan that charges interest. Basically, it is a percentage of the loan that you pay in addition to the loan itself. You pay more total, but have the ability to pay it over time. This is how many people purchase homes and cars, among other expensive purchases. There are many different types of interest. We will be covering two basic types; Simple interest and compound interest. For our purposes, the following formulas will be used;

Simple Interest is $I = P r t$

Compound Interest is $P (1+i)^n = m$

I=interest rate. Described as a percentage

P=principal

R=Interest rate

T=Time expressed in years or fractions of years (.5=6 months)

Yes, this involves math. So get your calculators ready to go and we will see what interest is all about and why it is important to know about.

Robert wants to purchase a car he saw for sale on the lot down the street. The total price of the car is \$10,000. Unfortunately, Robert only has \$5000 that he can use right now. For the other \$5000, he will need to get a loan.

Robert goes to the bank to get a loan for \$5000. This \$5000 amount is the PRINCIPAL. That means that is how much he is borrowing.

The bank agrees to give Robert the \$5000, but will charge him at a rate of 8% over the next 5 years. To calculate the simple interest, remember that $I = P r t$

$$I = 5000 * .08 * 5$$

IMPORTANT NOTE!!!

The amount of time needs to be expressed in decimals when shorter than a year. For simplicity sake, we use 360 days in a year, not the standard 365.

Some examples to work through:

I(Interest)	Principal	Rate (remember to make into decimal)	Time (in years)	Total Cost
	\$20,000	10.5%	4	\$
	\$1,800	17%	.5 (180 days)	\$
	\$100,000	3.875%	30	\$
	\$1,000	5%	1	\$

Calculating Interest—Some More Practice

Formula for Simple Interest $I=P*R*T$

I=Interest

P=Principal

R=Rate

T=Time (years)

I(Interest)	Principal	Rate (remember to make into decimal)	Time (in years)	Total Cost
	\$10,000	15%	5	
	\$15,000	5.5%	4	
	\$1,800	22%	3	
Work backwards to find the Rate on the examples below				
\$32,500	\$130,000		5	\$162,500
\$550	\$1,000		10	\$1,550
\$10,000	\$50,000		2	\$60,000
\$6,000	20,000		5	\$26,000

Great. So you can calculate interest. So what?

Well, when we put it to use in a real situation, then it becomes more interesting.

Let's say Johnny wanted to buy a car. Bank #1 offered him a \$15,000 loan at 6% interest for 5 years. Bank#2 offered him a \$15,000 loan at 5.5% for 6 years. Which loan would cost him more over the length of the loan? Which would cost him more on a monthly basis? (Remember to divide the total price by the number of months he would pay). Explain which loan Johnny should take. See the back for the chart to use.

	I(Interest)	Principal	Rate (remember to make into decimal)	Time (in years)	Total Cost	Monthly Payment
Bank #1		\$15,000	6%	5		
Bank #2		\$15,000	5%	6		

Which loan, Bank #1 or Bank #2, would you advise Johnny to take? Why?

Now its time for you to create your own example. Explain what the loan is for, what the principal is and give us two choices to make, adjusting the rate and the time.

Your scenario:

	I(Interest)	Principal	Rate (remember to make into decimal)	Time (in years)	Total Cost	Monthly Payment
Bank #1						
Bank #2						

