

# Program Support Notes



**Classroom**  
**VIDEO** EDUCATION WITH VISION

## Interest, Loans and Credit

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### ***For Teachers***

#### **Introduction**

Students do not often make the connection between simple Interest and compound Interest and how it will impact their own pockets in the next few years. This program has been developed to provide students with an age related example using simple and compound interest loans. In this program, our young presenter is planning to purchase a new bike and she investigates personal loans, interest free shop loans, credit cards and investing her money in order to determine the best way to make her purchase. Through the use of spreadsheets and comparisons, students will have a clear understanding of the ways in which both simple Interest and compound Interest work and the many fees associated with borrowing money.

#### **Timeline**

00:00:00	Introduction
00:00:58	Comparing simple and compound interest
00:03:28	How compound interest works
00:06:24	Loans with interest
00:11:35	Interest free options
00:17:09	Credits
00:17:45	End program

#### **Related Titles**

*Statistics - Sampling, Surveying and Data Analysis*  
*Pythagoras' Theorem - An Introduction*  
*Understanding Ratio and Proportion*  
*Linear Functions - An Introduction*

#### **Recommended Resources**

<http://www.onlinemathlearning.com/word-problems-compound-interest.html>  
<http://www.algebraab.org/>  
<http://math.about.com/od/businessmath/ss/Interest.htm>

***Student Worksheet***

**Initiate Prior Learning**

1. Define the following words:

a) Debit

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b) Credit

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c) Simple Interest

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d) Compound Interest

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## Interest, Loans and Credit

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2. Research five banks or credit unions and note down their current rate for personal loans. When you take out a personal loan is the interest calculated as simple Interest or compound Interest?
3. Select one type of credit card.
  - a) Does it have annual fees?
  - b) What is the current rate?
  - c) What are the different types of cards available?
  - d) Do they currently have any 'special' deals to entice you?
4. Using the following words and three of your own, prepare a mind map:
  - Simple Interest
  - Compound Interest
  - Annually
  - Quarterly
  - Fees
  - Credit cards
  - Investing money
  - Personal loans
  - Low interest
  - High interest
  - Borrowing
5. What experience do you have with interest on money? For example, do you have a savings account that provides you with interest? Have you ever borrowed money to purchase something? Did you have to pay interest on it? What other things have you learned about interest from your family, friends and the media?

### Active Viewing Guide

1. What is the formula for simple Interest?

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2. What does the 'R' stand for in both the simple interest and compound interest formulas?

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3. After how long would Sally's investment of \$1000 reach \$2000 using:

a) Simple Interest

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b) Compound Interest

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4. In the long term how does compound Interest behave graphically?

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5. How does paying interest annually differ from paying quarterly?

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6. Sally investigated borrowing \$3000 on a personal loan and she was interested in the 5 year term, as the repayments seemed a lot less. Complete the table to show how the overall interest was not favourable.

Length of loan	Fortnightly payments	Total loan repayment	Amount of Interest paid
2yrs			
5yrs			

## Interest, Loans and Credit

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7. What is the difference between a low rate credit card and a low fee credit card?

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8. Why isn't a low rate credit card a better option than a credit union personal loan for Sally?

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9. What are the hidden costs in a store credit card?

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10. Why can the 'no interest' plan in the bike shop be of long term benefit to Sally?

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### Extension Activities

1. Why would we as consumers prefer that credit cards calculate interest using simple Interest rather than compound Interest?
2. Investigate five different banks or credit unions and show which would offer you the best return on an investment of \$2000 after 3yrs. Provide calculations for each institution that you investigate.
3. You have just turned 18 and have been saving for the last few years. You have \$6500 to put towards your first car, but you need another \$6500. Investigate five different banks or credit unions and show which would offer you the best personal loan.
4. Design a poster showing the definitions and how to use the formulas for both simple and compound interest.
5. Find an online credit union or bank that has a calculator. Imagine that you have reached an age where you are ready to purchase your first home. Input some figures into the calculator and investigate the length of loans, repayments and final interest to be paid with the loan. Write a 250 word report on your findings.

## Suggested Student Responses

### Active Viewing Guide

1. What is the formula for simple Interest?  
 **$I = PRT$**
2. What does the 'R' stand for in both the simple interest and compound interest formulas?  
**R = interest rate expressed as a decimal. E.g. 5.5% = 0.055**
3. After how long would Sally's investment of \$1000 reach \$2000 using:
  - a) Simple Interest  
**17 yrs**
  - b) Compound Interest  
**13 yrs**
4. In the long term how does compound Interest behave graphically?  
**The curve gets steeper all the time, called an exponential curve.**
5. How does paying interest annually differ from paying quarterly?  
**In an investment you would get more money with interest paid quarterly because the interest is compounded more often.**
6. Sally investigated borrowing \$3000 on a personal loan and she was interested in the 5 year term, as the repayments seemed a lot less. Complete the table to show how the overall interest was not favourable.

Length of loan	Fortnightly payments	Total loan repayment	Amount of Interest paid
2yrs	<b>\$66.95</b>	<b>\$3481.40</b>	<b>\$481</b>
5yrs	<b>\$32.85</b>	<b>\$4270.50</b>	<b>\$1270</b>

7. What is the difference between a low rate credit card and a low fee credit card?  
**Low Rate = Lower rate of interest with an annual fee**  
**Low Fee = Higher Rate of interest with lower annual fees**
8. Why isn't a low rate credit card a better option than a credit union personal loan for Sally?  
**The Credit card annual fee makes the loan more expensive and if you do not make regular repayments the amount to pay back also increases.**
9. What are the hidden costs in a store credit card?  
**Establishment and administration fees, after the given time the interest rate could be as high as 30% and the monthly statements are misleading (minimum amount payable)**
10. Why can the 'no interest' plan in the bike shop be of long term benefit to Sally?  
**Over 3yrs the \$3000 loan would be 2.8%pa when fees are considered, this is a better rate than a personal loan or a credit card.**