

Project 13

Time Value of Money

Making Your Money Grow

As you begin to save money, you can help your money grow faster by putting it into interest-bearing accounts or investments that increase in value over time. Simple interest and compound interest are two types of interest calculations used to increase the value of money in savings accounts and other investment accounts. **Simple interest** is a quick method for calculating interest and is determined by multiplying the **principal** (your original deposit) by the annual interest **rate**, and then multiplying that result by the **time**, or number of periods, the money will be held to grow. **Compound interest** is earned on the **principal** and on the **accumulated interest** earned over **time**. Essentially, you are earning interest on interest. By learning the concept of how time and interest make your money grow now, you can confidently save and invest your money in a way that will pay off in the future.

Project Task

Using Google Sheets, you will use formulas to create a simple and compound interest calculator.

Scenario

You saved \$1,000 and plan to invest in a simple interest account or a compound interest account. The simple interest account earns 10% interest every year, while the compound interest account earns 8% interest. You want to determine which interest will make you more money with the same deposit amount, so you decide to create a spreadsheet that calculates how much your money will grow for a period of ten years.

Instructions

1. Open the Financial Literacy folder and create a new Google Sheet.
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2. Rename the spreadsheet Project 13 Interest Calculator.
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3. As you complete this project, refer to **Figure 13, Sheets 1 and 2** for the content to include in the spreadsheet.
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4. Key the data into the spreadsheet as shown on **Figure 13, Sheet 1**.

Hint: Resize columns as needed to display the data.

5. Rename the sheet [Simple Interest].

6. Format cell B1 as currency displaying 0 decimal places.

7. Use Autofill to complete the list of years in cells A5–A14.

8. In cell C5, use a formula to calculate the Simple Interest Earned for Year 1.

Hint: In cell C5, key = $\$B\$1\$B\2*

9. In cell D5, use a formula to calculate the Ending Balance for Year 1.

Hint: In cell D5, key = $SUM(B5:C5)$

10. In cell B6, use a formula to calculate the Beginning Balance of Year 2.

Hint: In cell B6, key = $D5$

11. Use Autofill to copy the formula down column B to cell B14.

Hint: Data will not appear in the cells; however, the copied formulas will appear in the function bar.

12. Use Autofill to copy the formula in cell C5 down column C to cell C14.

13. Use Autofill to copy the formula in cell D5 down column D to cell D14.

14. In cell B16, key the text [Total].

15. In cell C16, use a formula to calculate the total simple interest earned.

Hint: In cell C16, key = $SUM(C5:C14)$

16. Format cells B5–D16 as currency displaying 2 decimal places.

17. Insert a new sheet and rename it [Compound Interest].

18. Key the data as shown in **Figure 13, Sheet 2**.

19. Format cell B1 as currency displaying 0 decimal places.

20. Use Autofill to complete the list of years in cells A5–A14.

21. In cell C5, use a formula to calculate the Compound Interest Earned for Year 1.

Hint: In cell C5, key =B5\$B\$2*

22. In cell D5, use a formula to calculate the Ending Balance for Year 1.

Hint: In cell D5, key =SUM(B5:C5)

23. In cell B6, use cell D5 to calculate the Beginning Balance of Year 2.

Hint: In cell B6, key =D5

24. Use Autofill to copy the formula down column B to cell B14.

Hint: Data will not appear in the cells; however, the copied formulas will appear in the function bar.

25. Use Autofill to copy the formula in cell C5 down column C to cell C14.

26. Use Autofill to copy the formula in cell D5 down column D to cell D14.

27. Format cells B5–D16 as currency displaying 2 decimal places.

28. In cell B16, key the text [Total].

29. In cell C16, use a formula to calculate the total compound interest earned.

Hint: In cell C16, key =SUM(C5:C14)

30. Insert a new sheet and rename it [Analysis].

31. Merge cells A1–E1 and apply the Wrap text feature.

32. In cell A1, answer the following question in 2-3 sentences: Would you select simple or compound interest in this scenario? Why?

33. Carefully proofread your work for accuracy.

34. Change the page orientation of all sheets to portrait and remove all headers and footers except the Sheet names.

35. Share or print the spreadsheet if required by your instructor.

Figure 13, Sheet 1

	A	B	C	D
1	Principal	1000		
2	Annual Interest Rate	10%		
3				
4	Year	Beginning Balance	Simple Interest Earned	Ending Balance
5	1	1000		
6	2			
7	3			

Figure 13, Sheet 2

	A	B	C	D
1	Principal	1000		
2	Annual Interest Rate	8%		
3				
4	Year	Beginning Balance	Compound Interest Earned	Ending Balance
5	1	1000		
6	2			
7	3			