



## Project 1: Introduction to Spreadsheets

#### Eighth Grade Unit 3 - Project 1

#### Notes & **Preparation**



**Project length**: 2 classes

**Instructor note:** Allow students to explore and discover new tools and functions in the spreadsheet.

Files to load: Unit 3: Project 1: 8th Intro Presentation

Unit 3: Project 1: 8th Template

#### Content **Standards**



CA CS Standards:

6-8. DA.7, 6-8. DA.9, 6-8. AP.11

**ISTE Standards:** 

#3, #4, #5, #6

**NET Standards** 

#3, #4, #6

#### Engage



#### **Opening**

Welcome the students to technology class. Let them know that over the next unit they will be working with a program where they will collect data and transform the data to make it more useful. Then represent the data in multiple ways.

Review the previous unit the students completed. Discuss the differences between a spreadsheet program and a word processing program to help the students understand the purpose of the spreadsheet program they are about to use. Discuss why students would use a form to collect data, instead of a word processing program.

#### **Spreadsheet/Database Introduction**

Let students know that over the next few lessons they will be working with a program that looks very similar to Cross Word Puzzles. There are rows that go across and columns that go up and down. There are also boxes called 'cells' where we enter information or 'data'. This new program is called a spreadsheet and database program. This type of program is different than a word processor.



A word processor lets you type words and paragraphs. A database program helps you gather information quickly to sort and categorize information. A spreadsheet program is used often to input numbers and do different math problems. Give examples of the differences between a word processor and spreadsheet/database program.

#### **Project Description**

Today is a review and assessment of forms, spreadsheets, and databases.

Discuss and show the purpose of Spreadsheets:

 Used to put information into rows and columns to perform functions like adding a series of numbers.

Discuss and show the purpose of Databases:

• Used to gather information so they can quickly sort through the entries.

With the introduction of each software, review the toolbars and unique ability of the software.

#### Web Resources for more Exploration



- Navigate to the following websites to give basic information about passwords and spreadsheets:
  - o <a href="https://curriculum.code.org/csf-19/coursec/2/">https://curriculum.code.org/csf-19/coursec/2/</a>
  - o <a href="http://viewpure.com/05xfGNLA5W0?start=0&end=0">http://viewpure.com/05xfGNLA5W0?start=0&end=0</a>
  - o <a href="https://www.computerhope.com/jargon/s/spreadsheet.htm">https://www.computerhope.com/jargon/s/spreadsheet.htm</a>
- Bring in/show a picture of and discuss the game Battleship and how the boat positions directly correlate to cell addresses.
- For the teacher explore
   <u>https://www.responsiveclassroom.org/teaching-perseverance/</u> for examples of modeling perseverance strategies
- Online Money games
- Money Management for Teens

#### Additional Emphasis



- eview how to make a capital letter by holding down the shift key.
- Toolbar of a spreadsheet.
- Keyboard commands for spreadsheets.
- Identify cell address.
- Expanding rows.
- Using parentheses, brackets, or braces in numerical expressions.
- 'Share' spreadsheet and collaborate with peer.

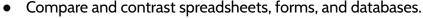






## Learning Outcomes

#### Students will:





- Basic formulas on a spreadsheet.
- Commands on a keyboard.

#### Project Steps

#### Have the student:

- Open a spreadsheet program <u>Unit 3: Project 1: 8th Template</u>
- 2. Identify a worksheet and explain a workbook
- 3. Switch to the 'Crossword Puzzle' sheet
- 4. Open the link <u>Unit 3: Project 1: 8th Intro Presentation</u>
- 5. Identify a worksheet and explain a workbook
- 6. Identify the different cursor and tools
- 7. Review the following with the students:
  - a. Identify a cell
  - b. Identify a column
  - c. Identify a row
  - d. Identify a sheet
- 8. View the different worksheets contained in the workbook
- 9. Switch to the worksheet 'Guess Who??'
- 10. Use the presentation to solve the puzzle. **Note: If the box adds pictures** the word is correct.
- 11. Type the correct term to match the definition
- 12. Switch to the 'Conditional Formatting' worksheet
- 13. Review the math problems in the cells A5:A18
- 14. Add more if desired
- 15. Type the answers in the cells C5:C18
- 16. Highlight the hidden answers in column C (including title)
- 17. Change text color to white
- 18. Highlight a cell in the yellow cells
- 19. Use the CTRL to highlight additional cells
- 20. Click on Format
- 21. Select Conditional Formatting
- 22. Notice the Apply to Range
- 23. Select 'Format Cells if' to 'Custom Formula is
- 24. Type the value =\$B\$5=\$C\$5
- 25. Change the Fill color
- 26. Highlight a cell in the yellow cells
- 27. Use the CTRL to highlight additional cells





- 28. Add another rule
- 29. Notice the Apply to Range
- 30. Select 'Format Cells if' to 'Custom Formula is
- 31. Type the value =\$B\$6=\$C\$6
- 32. Change the Fill color
- 33. Continue steps if necessary
- 34. Test the answers in column B
- 35. Switch to the 'Shopping List' worksheet
- 36. Select food items in Column A
- 37. Select at least six items
- 38. Use the drop-down arrow to select the item, quantity, and price
- 39. Make sure your items match the Grocery List provided
- 40. Insert a formula that will calculate the Total of each item. Multiply the quantity and the regular price. (Ex **=B4\*C4**)
- 41. Use the Fill handle option to copy the formula to cell D24
- 42. Highlight Column F4:F24
- 43. Click on Data
- 44. Select Data Validation
- 45. Click in the 'Enter a range or formula box'
- 46. Select cells K3:K23
- 47. Click on Save
- 48. Highlight Column G4:G24
- 49. Click on Data
- 50. Select Data Validation
- 51. Click in the 'Enter a range or formula box'
- 52. Select cells G3:G23 items in column 'L'
- 53. Repeat the steps for column H selecting column 'M'
- 54. Click on Save
- 55. Select Non-Food items in Column F
- 56. Select at least six items
- 57. Use the drop-down arrow to select the item, quantity, and price
- 58. Make sure your items match the Grocery List provided
- 59. Insert a formula that will calculate the Total of each item. Multiply the quantity and the regular price. (Ex **=G4\*H4**)
- 60. Highlight the items in column F
- 61. Click on Data
- 62. Select Named Ranges
- 63. Type 'NonFoodItems' (Hint: no spaces)
- 64. Click on Done
- 65. Highlight the Quantity in column G



68. Add a Range 67. Type 'NonFoodQuantity' (Hint: no spaces) 68. Click on Done 69. Add a Range 70. Type 'NonFoodPrice' (Hint: no spaces) 71. Click on Done 72. Add a Range 73. Type 'NonFoodTotal' (Hint: no spaces) 74. Click on Done 75. Switch to 'Named Ranges' Worksheet 76. Click on cell B7 77. Type the formula =counta(nonfooditems). Note: The formula will be recognized. 78. Click on B8 79. Type the formula =sum(nonfoodquantity). Note: The formula will be recognized. 80. Click on B9 81. Type the formula =sum(nonfoodtotal). Note: The formula will be recognized. 82. Highlight each table 83. Alternate Colors  Reflection Reflection Click on B9 81. Create your own Game by adding a worksheet 2. Use Conditional Formatting 3. Share with peers 4. Change fonts		66. Add a Range
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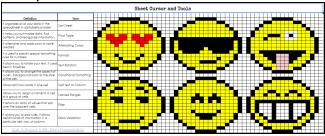


#### **Template**

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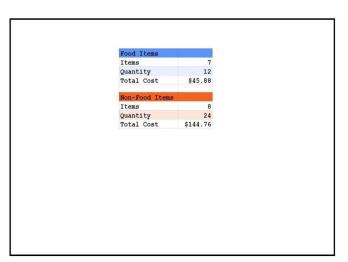
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Food Items Items Quantity Total Cost







## Project 2: Budgets

#### Eighth Grade Unit 3 - Project 2

## Notes & Preparation



- Project length 3-4 classes
- Instructor note Break up the theme over a few weeks, highlighting one area of digital literacy each week. Introduce the different aspects of purchasing a car during the different weeks of the project.
- Files to load None

#### Content Standards



#### CA CS Standards:

6-8. DA.7, 6-8. DA.9, 6-8. AP.11

**ISTE Standards:** 

#1, #2, #3, #4

**NET Standards** 

#1, #3, #4, #6

#### **Engage**



#### **Opening**

Welcome students to technology class. Review columns, rows, cells, and formulas. Review the toolbar.

#### Character Theme Introduction - Digital literacy

Digital online media literacy means having the skills you need to live, learn, and work in a world where communication and access to information are increasingly through digital technologies like Internet platforms, social media, mobile devices as well as laptops/desktop computers. Digital literacy has two main elements, becoming a critical thinker and being a creative producer of a wide range of messages using an image, language, and sound.

Developing critical thinking skills is significant when bombarded with so much information at all times of the day on many different devices and formats. Skills are needed to know how to search, sift, evaluate, apply, and produce information that is accurate and thoughtful.

<u>UNESCO</u> defines information literacy as the ability to locate, identify, retrieve, process, and use digital information optimally. This requires both cognitive and technical skills. It is the ability to use information and communication technologies to seek, evaluate, create, and then communicate that information.



#### **Project Introduction**

In this project, students will map out the cost of purchasing a vehicle. Students will choose a car, research insurance rates, registration rates, and other costs that go into owning a car. Finally, students will compare the cost of purchasing with cash or getting a loan.

#### Discuss with students:

- What type of car do I need to purchase?
- Should I buy a new or used car?
- Where is the best place to get a car loan?
- Do I have enough money to buy a car?
- How do I know what information to trust when looking at a car to purchase?

#### Web Resources for more Exploration



- Web resources Auto Loan Calculator
- <u>Digital Literacy</u> By: BBC Learning English
- How Does "Fake" News Become News? By: Learning for Justice
- Online Money Games By: Moneycrashers
- <u>Buying Your First Car</u> By: Fair TradingQLD (scroll through and show what is applicable for your students)
- <u>5 Steps to Buying Your First Car</u> By: Mere Life

#### Additional Emphasis



- Discuss how to search and evaluate proper and accurate information.
- How to take a screenshot.
- Leasing vs owning a car. Cash vs credit purchase of a car.

## Learning Outcomes



#### Students will:

- Understand literacy necessary to access the Internet, awareness literacy, evaluation literacy, and literacy to produce media messages.
- Spreadsheet formulas to get the desired outcome.
- Understand how to use a spreadsheet to compare and contrast different elements in purchasing a car.
- Represent data in multiple ways.





•	Collect data using computational tools and transform the data to make it
	more useful.

#### Project Steps



#### Have the student:

- 1. Navigate to drive.google.com
- 2. Click on the 'New'
- 3. Create a new folder
- 4. Name the folder '8th Grade Unit 3 Projects (Student Name)'
- 5. Click on the folder name
- 6. Click 'Share'
- 7. Add your instructor's email address
- 8. Click 'Send'
- 9. In the folder, click 'New'
- 10. Click 'Google Sheet'
- 11. Click 'Untitled Spreadsheet' to rename the file
- 12. Name the Sheet '2022 8th Grade Unit 3 Project 1 Student Name'
- 13. Right-click on the 'Sheet Name'
- 14. Click Rename
- 15. Type 'Costs to Owning a Car with Cash'
- 16. Click the plus sign to create a new sheet
- 17. Right-click on the new sheet tab
- 18. Type 'My Car'
- 19. Click cell A1
- 20. Type 'Car Make:'
- 21. Hit Enter to go to the next cell in the column
- 22. Type 'Car Model:'
- 23. Hit Enter to go to the next cell in the column
- 24. Type 'Car Year:'
- 25. Hit Enter to go to the next cell in the column
- 26. Type 'Car Color:'
- 27. Hit Enter to go to the next cell in the column
- 28. 'Type Zip Code:'
- 29. Highlight Cells A1-A5
- 30.Bold the text
- 31. Right align the text
- 32. In column B, type the appropriate answers for each student
- 33. Open a new tab
- 34. Search for the car
- 35. Find an image of the car
- 36. Take a screenshot of the image. Note: On a Mac use 'Cmd+Shift+4', on a PC use 'Windows Key+Shift+S'.



- 37. Click on the tab with the Google Sheet open
- 38. Paste the image onto the 'My Car' tab
- 39. Resize the image if needed to fit on the screen
- 40. Click and Highlight Cells D1, D2, E1, E2, F1, F2
- 41. Click Merge Cells
- 42. Type 'My Dream Car'
- 43. Change the font size to 18pt.
- 44. Center-Align the text
- 45. Fill the cell with a background color of your choice
- 46. Middle-Align the text
- 47. Change font style.

Note: This is a great pausing point before jumping into calculating the costs of purchasing a car with cash and the costs of ownership.

- 48. Click on the 'Cost to Buying a Car with Cash' sheet
- 49. Click cell A1
- 50. Type 'Item'
- 51. Click cell B1
- 52. Type 'Cost'
- 53. Highlight cells A1 and B1
- 54. Click 'Ctrl+B' to bold the text in the cell
- 55. Click the alignment tool and align center
- 56. In Column A, type out a list of expenses that someone may have when owning a car. Note: This could include but is not limited to: Cost of Initial Purchase, Registration, Title, Insurance, Scheduled Maintenance, Gasoline, Unscheduled Maintenance, Car Wash, Sales Tax, Insurance, and Roadside Assistance.
- 57. Include the following as the last two cells: 'Total Expenses Year 1' and 'Projected Expenses Year 2'
- 58. Select all cells in the sheet
- 59. Set the font size to 12pt
- 60. Double click on the line between column header A and column header B to expand Column A to fit the size of the text
- 61. Format Column B to Currency
- 62. In Column B, fill in each cell with the appropriate amount of money that each expense will cost. The students will need to research to find these estimates.
- 63. To find the cost, go to the manufacturer's website and use the listed price. For the insurance estimate, use \$1500. To find the cost of roadside assistance, use a search engine to find out a recommended estimate. To find the recommended savings for unexpected car maintenance, use a



search engine. To find the estimated registration cost, use a search engine to find the state fees (many states have a DMV calculator). Find the cost of Car Washes, this can be relative and up to the student. Some students value a shiny car, some do not.

- 64. Find the estimated cost of gas for the year
- 65. Click on Cell D1
- 66. Bold the text in the cell prior to typing
- 67. Type 'Calculations'
- 68. Click on Cell D2
- 69. Type 'Miles from Home to School'
- 70. Click on Cell D3
- 71. 'Miles from School to Home'
- 72. Click on the cell D4
- 73. Type 'Miles from Home to Grocery Store'
- 74. Click on the cell D5
- 75. Type 'Miles from Grocery Store to Home'
- 76. Click on the cell D6
- 77. Type 'Days of School'
- 78. Click on the cell D7
- 79. Type 'Days of Grocery Shopping'
- 80.Click on the cell D8
- 81. Type 'Miles Driven for School in a Year'
- 82. Click on the cell D9
- 83. Type 'Miles Driven for Grocery Shopping in a Year'
- 84. Click on the cell D10
- 85. Type 'Miles Driven in a Year'
- 86. Click on the cell D11
- 87. Type 'Miles Per Gallon'
- 88. Click on the cell D12
- 89. Type 'Cost of Gas/Gallon (\$)'
- 90.Click on the cell D13
- 91. Type 'Total Cost of Gas for the Year'
- 92. Click on cell E2
- 93. Type the estimated miles to school
- 94. Click on cell E3
- 95. Type the estimated miles home from school
- 96. Click on the cell E4
- 97. Type the estimated miles to the grocery store
- 98. Click on cell E5
- 99. Type the estimated miles from the grocery store back home



- 100. Click on the cell E6
- 101. Type the days of school (usually 180)
- 102. Click on the cell E7
- 103. Type the days of grocery shopping in a year.

Note: some families go once a week; others go once a month. This can be an estimate from the student. The sample has 1 trip to the grocery store for each week of the year (52).

- 104. Click on the cell E8
- 105. Type out the formula =sum(E2:E3)\*E6. Note: This is (Miles to School + Miles Home)\* Days of School.
- 106. Click on the cell E9
- 107. Type out the formula =sum(E4:E5)\*E7. Note: This is '(Miles to Grocery Store + Miles Home)\*' Days of Grocery Shopping.
- 108. Click on the cell E10
- 109. Type out the formula =sum(E8:E9). Note: This is the sum of Miles

  Driven for School in a Year + Miles Driven for Grocery Shopping in a Year.
- 110. Click on the cell E11
- 111. Type the Miles Per Gallon of the car searched earlier. **Note: This can be found by using a search engine.**
- 112. Click on the cell E12
- 113. Format cell to currency
- 114. Type the current average cost of gas
- 115. Click on the cell E13
- 116. Format cell to currency
- 117. Type the formula =(E10/E11)\*E12
- 118.Click on cell B7Type the formula =(E13)
- 119. Click on the B cell next to the item 'Total Expenses Year 1'
- 120. Type the formula =sum() and highlight all of the cells above this row to get the total amount that the car will cost for the first year
- 121. Click on the B cell next to the item 'Projected Expenses Year 2'
- 122. Type the formula =sum() and highlight all of the cells above this row, except the Cost of Purchase cell to get the total amount that the car will cost for the second year

Note: This is a great pausing point before calculating the costs of leasing a car.

- 123. Open a new tab on your search engine
- 124. Navigate to the site: <u>Auto Loan Calculator</u>
- 125. Enter the Auto Price based on the cost of the car chosen earlier in the project, at the brand-new price
- 126. Enter 60 months as the Loan Term



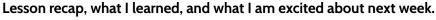
- 127. Enter the down payment as whatever the student thinks would be a good first payment for a car. Explain that the more paid initially, the higher the savings are down the road.
- 128. Leave Trade-In Value set as 'O'
- 129. Select the state the student lives in
- 130. Enter the sales tax at the current rate
- 131. Enter the registration cost calculated earlier in the project
- 132. Click 'Calculate'
- 133. Take a Screenshot of the updated information
- 134. Navigate back to your Google Sheet
- 135. Create a new sheet tab
- 136. Type 'Cost of Buying a Car with a Loan'
- 137. Click on the My Car Tab
- 138. Paste the Screenshot
- 139. If needed, adjust the size so that the image fits on the screen
- 140. Navigate to the 'Cost of Buying a Car with Cash' tab
- 141. Copy columns A and B A1:B10
- 142. Navigate to the 'Cost of Buying a Car with a Loan' tab
- 143. Paste the values only into columns A and B
- 144. Format Columns A and B to Currency
- 145. In the cell that says 'Cost of Purchase' change the text to say 'Down Payment'
- 146. In the cell next to it (column B), type the 'Upfront Payment' price from the screenshot
- 147. Leave these cells the same (and any other car specific features budgeted in the first section of this project):
  - a. Insurance
  - b. Roadside Assistance
  - c. Scheduled Maintenance
  - d. Unscheduled Maintenance
  - e. Gas
  - f. Registration
  - g. Car Wash
  - h. Title
- 148. Click on B11
- 149. Type 'Monthly Payment'
- 150. In the B column cell next to the cell just populated, type in the monthly payment cost from the screenshot
- 151. Click on the next blank cell in column A
- 152. Type 'Total Cost'





- 153. In the B column next to the cell just populated, type in the Total Cost listed on the screenshot
- 154. Click on the next blank cell in column A
- 155. Type 'Total Expenses Year 1'
- 156. In the B column next to the cell just populated, use a SUM formula to calculate the following: =sum(all annual expenses)+(monthly payment cost) \*12
- 157. Click on the next blank cell in column A
- 158. Type 'Amount Left to Pay after Year 1'
- 159. In the B column next to the cell just populated, use the following formula to calculate the following: =(Total Cost)-(Monthly Payment)\*12
- 160. Remove extra Column and Rows
- 161. Click on Column or Row
- 162. Press CTRL+SHIFT+(right arrow or down arrow)
- 163. Right-Click
- 164. Delete Column or Rows
- 165. Share your outcomes with a peer. Compare and contrast the two different outcomes of paying cash versus having a loan.
- 166. Turn it into your Learning Management System

#### Reflection





Reflect on the many nuances of this project. What did they learn during this project? What did they discover about how to find accurate information? Did their opinion on what to purchase change after the assignment?

Highlight the difference between the year 2 car expenses when buying a car with cash, versus the amount of money left to pay after year 1 when buying a car with a loan. The Auto Loan calculator will show the total cost price compared to the first year of costs for a car paid in cash. Have the students discuss the benefits of buying a car with a loan. Have the students discuss the benefits of buying a car with cash.

#### **Extend**

## 7

#### Spreadsheet 'Cost of Buying a Car':

- 1. Highlight the spreadsheet and format to 'alternating colors' from the 'format' toolbar
- 2. Bold cells A-E:11-15
- 3. Highlight cell D-E:8-9. Insert chart
- 4. Customize chart colors





# Sheet 'Cost of Buying a car with a loan: 5. Color Fill Row A-B:1 6. Bold cells: A-B:12-14

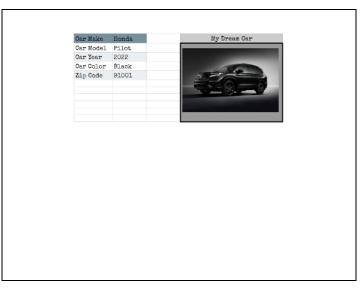


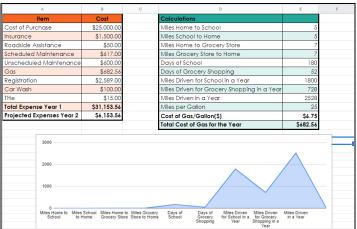


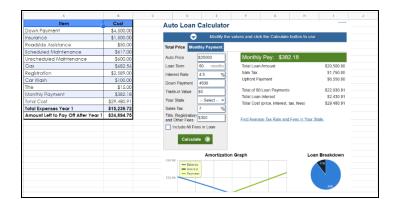
# TECHNOLOGY PLUS COMPUTER SCIENCE AND LITERACY CURRICULUM

#### **Template**

#### Sample











## Project 3: Creating a Personal Budget

Eighth Grade Unit 3 - Project 3

#### Notes & Preparation



- **Project length: 3 classes**
- **Instructor note:** Different cultures have different ideas when it comes to talking about finances. Be culturally aware in this lesson. Some students may not have any actual money they ever touch, others might budget all the time. Determine ahead of time if students will make an actual budget based on students' allowance or jobs they do, or if it will be fictional.
- Files to load: None

#### Content **Standards**

#### CA CS Standards:

6-8. DA.7, 6-8. DA.9, 6-8. AP.11



**ISTE Standards:** #1, #3, #4, #5, #6

**NET Standards** 

#1, #3, #4, #6

#### Engage



#### **Opening**

Welcome students to Technology class. Recap spreadsheets and the prior lessons. Discuss digital literacy and the skills they have learned so far this year.

#### <u>Character Theme Introduction - Responsible Choices With Our Finances</u>

Making responsible choices regarding finances can be difficult for many. Discuss the importance of making and keeping a budget. Brainstorm places in our lives where we spend money. List and categorize items, such as saving to purchase a big item, where saving is important to achieve the purchase.

Have students list current realistic or fictional items for their budget.

A well written goal for finances is specific with a timeline. By creating a budget, students will see how long it will take them to save for that big purchase.

#### **Project Introduction**

This project is to create budget awareness. The students will plan out the lifestyle they wish to have (ex: going out to dinner 2 times a week with friends, buying





	new shoes, going on vacation) and will calculate how much money they will need to have in order to meet their lifestyle needs.
	Then they will create a document, format it to MLA formatting, and write up a summary of the project using critical thinking.
Web Resources	Budgeting Basics  By: Two Cents
for more	<u>8th Grade Budgeting Intro</u> By: Miss Gianna Gurga
Exploration	BrainPop Jr. Saving and Spending By: BrainPop
Additional Emphasis	<ul> <li>Demonstrate how to format colors, style, and fonts on a chart.</li> <li>Discuss pivot tables and tools to create.</li> </ul>
Learning	Students will:
Outcomes	Understand the importance of having a budget in order to save for future
	big purchases.
	Create a pivot table and other charts in a spreadsheet.
	Critically evaluate spending habits and goals.
Project	Have the student:
Steps	1. Navigate to Google Drive
10	2. Click on the folder created for this unit
2	3. Create a new spreadsheet
3	4. Title the spreadsheet 'Unit 3: Project 3: 8 <sup>th</sup> Grade (student name)'
4	5. Rename the sheet to 'My Personal Budget'
	6. Select Row 2
	7. Change size to 14pt Bold 8. Center Align
	9. Highlight cells A1:E9
	10. Format cells to Alternating Colors
	11. Add All Borders
	12. In Row 1, add these column headers

- a. A-Item
- b. B Cost Each Time
- c. C Frequency Per Month
- d. D Category
- 13. Add additional formatting as desired to A1:E15
  - a. Wrap text
  - b. Space the columns to show all the text in a cell
  - c. Change the font color
  - d. Alternating Colors
- 14. In column A, add 5 items that you would like to include in your ongoing monthly budget. Examples include: going to the movies with friends, getting your nails done, getting a haircut, having a cell phone, and buying toiletries.
- 15. In column B, add the estimated cost of each of these items. Students may need to use a search engine to determine the estimate. Students can also reference real life situations.
- 16. Format column B to Currency
- 17. In column C, add how many times this item/event happens each month. For example, going out with friends 1 time per week would be a frequency of 4 times each month. Getting your haircut every other month would be a frequency of .5 times each month.
- 18. In column D, add a category. This is up to the discretion of the student. Examples might include: Social, Food, Needs, Bills, Extra, Fun, and Hygiene.
- 19. In column A, add 2 items that the student would like to save up for. For example: buying a car, a vacation, or having money for gifts for others throughout the year.
- 20. In column B, add the amount that a student wants to save each time
- 21. In column C, add the frequency of how often they want to save the amount chosen
- 22. In column D, add the category 'Savings'
- 23. In cell E1, add the heading 'Monthly Amount'
- 24. Format column E to currency
- 25. In column E, row 2 type the formula =B2\*C2
- 26. Use the Fill Series to last item
- 27. Click and drag down. Note: The formula should now populate automatically in each cell. Note: If a row does not have fill color or borders:
  - a. Highlight a row that has a fill color
  - b. Select Paint Format



- c. Click on the Rows that need fill color
- d. Press Enter
- 28. Highlight the entire table
- 29. Click on Insert
- **30. Select Pivot Tables**
- 31. Rename Sheet to 'Pivot Table Budget'
- 32. Click on A3
- 33. Select Add Row
- 34. Select 'Item'
- 35. Click on B1
- 36. Select Values
- 37. Select 'Monthly Values
- 38. Summarize by 'Sum'
- 39. Highlight Table not including 'Totals'
- 40.Click Insert
- 41. Click Chart
- 42. Adjust the size of the chart to fit well on the spreadsheet
- 43. Observe the type of chart, and what the chart might be showing.
- 44. Questions to ask for helpful observations might include:
- 45. What is my initial observation?
- 46. What kind of chart is it?
- 47. What does the title say?
- 48. What does the title mean?
- 49. Have I seen this chart before?
- 50. What do the numbers show?
- 51. Click on the bar chart
- 52. Observe the type of chart, and what the chart might be showing.
- 53. Click on a histogram chart
- 54. Observe the type of chart, and what the chart might be showing.
- 55. Click on an area chart
- 56. Observe the type of chart and what the chart might be showing. Note: This is a great time to pause the assignment if needed.
- 57. In a new tab, navigate to drive.google.com
- 58. Go to the folder created for unit 3
- 59. Create a new Google Doc
- 60.Click the Document Title
- 61. Title the document 'Unit 3: Project 3b 8th (Student Name)'
- 62. Click the font drop-down and choose Times New Roman
- 63. Click the font size and set it to be 12pt font
- 64. Click File





- 65. Click Page Set Up
- 66. Set the Paper Size to be 8 ½" x 11"
- 67. Set the Orientation to be Portrait
- 68. Set the Margins each to be 1 inch (Top, Bottom, Left, Right)
- 69. Click OK
- 70. Click the "Line & Paragraph Spacing" button on the toolbar
- 71. Click "Double"
- 72. Double Click towards the top of the page to open the Header
- 73. Set the font to be Times New Roman
- 74. Set the font size to be 12pt
- 75. Set the orientation of the text to be right aligned using the alignment icon in the toolbar
- 76. Insert Page Number
- 77. Type the student's last name in front of the page number
- 78. Set the settings for the Header
- 79. Check the box next to 'Show on First Page'
- 80. Under 'Numbering' check to make sure that it says Start at 1
- 81. Click Apply
- 82. Double click on the middle of the page to close the header
- 83. Click the cursor to start a new line of text at the top of the document
- 84. Type the student's name in this format: First Name Last Name
- 85. Hit Enter to add a new row of text
- 86. Type the class name
- 87. Hit enter to add a new row of text
- 88. Type the date in this format: # Month Year (30 April 2022)
- 89. Hit enter to add a new row of text
- 90. Click the center align icon to center align the text
- 91. Hit enter to add a new row of text
- 92. Click the left align tool
- 93. Click the 'tab' key to indent the first line of the paragraph
- 94. Write a paragraph answering the prompt: Write about what your ideal lifestyle would look like. Discuss where you would like to live, the activities you wish to be involved in, and the types of motorized vehicles you wish to have.
- 95. Hit enter to add a new row of text
- 96. Click the 'tab' key to indent the first line of the paragraph
- 97. Write a second paragraph discussing how your lifestyle goals are impacted by your financial situation and goals
- 98. Remove extra Column and Rows
- 99. Click on Column or Row



# TECHNOLOGY PLUS COMPUTER SCIENCE AND LITERACY CURRICULUM

	<ul> <li>100. Press CTRL+SHIFT+(right arrow or down arrow)</li> <li>101. Right-Click</li> <li>102. Delete Column or Rows</li> <li>103. Turn in both sheet and document into Learning Management System</li> </ul>
Reflection	Lesson recap, what I learned, and what I am excited about next week.
	Reflect on creating a budget. Discuss with students why it is difficult to stay on budget. Discuss what they observed from this project.
Extend	Use computational thinking to figure out how to  1. Add alternating colors  2. Sort category column D with advanced sorting keeping items, category together yet grouped by category  3. Freeze Row 1  4. Add a peer to your web page by using 'people chip'





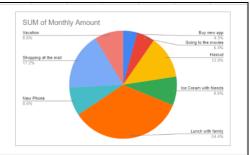
# TECHNOLOGY PLUS COMPUTER SCIENCE AND LITERACY CURRICULUM

#### **Template**

#### Sample

А	В	С	D	Е
Item	Cost Each Time	Frequency Per Month	Category	Monthly Amount
Going to the movies	\$25.00	1	Social	\$25.00
Haircut	\$30.00	2	Need	\$60.00
Ice Cream with friends	\$20.00	2	Social	\$40.00
Lunch with family	\$40.00	4	Food	\$160.00
Buy new app	\$10.00	2	Extra	\$20.00
Shopping at the mall	\$40.00	2	Extra	\$80.00
Vacation	\$20.00	2	Savings	\$40.00
New Phone	\$20.00	2	Savings	\$40.00





Last Name 1

Student Last Name

Technology Class

May 21, 2022

Write about what your ideal lifestyle would look like. Discuss where you would like to live, the activities you wish to be involved in, and the types of motorized vehicles you wish to

Write a second paragraph discussing how your lifestyle goals are impacted by your financial situation and goals.





## Project 4: Bringing Joy to Others Through Project Management

Eighth Grade Unit 3 - Project 4

Notes & Preparation	<ul> <li>O Project length: 3 classes</li> <li>O Instructor note: This project is teaching basic project management setup using Sheets.</li> <li>O Files to load: <u>Unit 3: Project 4: 8th Template</u></li> </ul>
Content	CA CS Standards:
Standards	6-8. DA.7, 6-8. DA.9, 6-8. AP.11
	<u>ISTE Standards:</u> #1, #2, #4, #5, #6 <u>NET Standards</u> #1, #3, #4, #6
Engage	Opening Welcome students to Technology Class. Recap with students the elements of a spreadsheet. Discuss with students how spreadsheets are used.
	Character Theme Introduction Find your inspiration. Ask yourself 'What inspires me?'. Have you ever seen an inspirational video from a young teen and wondered how they ever accomplished their goals? Have you ever thought of a project that would inspire others, but it just seemed impossible to complete? Or maybe you have a great idea that will solve a world problem, but you think it can only be accomplished once you're an adult.
	People will set goals. But often it's a dream or a wish. Yet some people complete their dreams early on. Discuss with students the goals and dreams that they have.
	Then have your students come up with a goal where the outcome would bring joy to others.
	Project Introduction





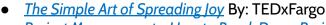
A project is a temporary effort to produce a unique outcome. This is different from ongoing tasks in our day-to-day lives. Examples of projects include writing short stories to be read at a senior home or adding owl boxes in your backyard to protect owls. Examples of ongoing tasks include putting away toys, dusting, or weeding in the backyard.

In this project, students will use project management tools and methodologies to plan out a project. They can take what they learn and build to execute and complete the project in their own time, or over the summer should they choose! This will include breaking a big idea down into smaller buckets and tasks, estimating timelines, and building a process to help complete the project on time.

Discuss projects students have going on in their lives currently. Discuss projects they would like to work on or create. Ideas may be similar or include:

- Use recycled tires to create dog beds for an animal shelter
- Construct several bee houses for a park or wilderness area
- Build owl boxes to protect endangered owls
- Reducing climate in your community (time stamp 2:37)
- Bring Science mentors to your community
- Writing a short story or fanfiction
- Learn calligraphy and create cards to sell
- Create a community garden
- Create placards and informational signs to educate the public on native species
- Organized groups to mow lawns for elderly community neighbors
- <u>Led hands-on activities during Autism Awareness day to spread important information to the community</u>
- Learn

#### Web Resources for more Exploration



<u>Project Management - How to Break Down Projects</u>
 <u>6 Real Life Project management Examples</u> By: Timothy Meixner



#### Additional Emphasis

- Overview of spreadsheets.
- Bringing joy to others.







Steps to breaking down projects.

#### Learning Outcomes

#### Students will:

- Understand the difference between a task and a project.
- How to break down projects into actionable steps.
- Be introduced to the idea of bringing joy to others by leading a project.

#### Project Steps

# 2 3

#### Have the student:

- 1. Open a web browser
- 2. Navigate to Google Drive
- 3. Open Template <u>Unit 3: Project 4: 8th Template</u>
- 4. Click 'File' and 'Make a Copy'
- 5. Name document '8<sup>th</sup> Grade Project Management Tech lesson (Student name)'
- 6. In the newly created file, click on the tab: 1. Project Information
- 7. Take time to answer the 10 pre-project questions
  - a. Add your questions to column B, next to the respective question in column A
  - b. Project Management Tip: Add as much information here as you can, this will help build out the rest of your project, and keep you organized from the start

#### **Work Breakdown Structure**

- 8. Click on the tab: 2. Work Breakdown Structure
- 9. Click on the cell that contains 'Project Name:' and type a project name following the column. Note: This is the shortest form of describing the project. Examples of project names are 'Summer Backyard Clean Up' or 'Building a Dresser' or 'Applying to College'.
- 10. Click on the cell that contains 'Start Date:' and today's date
- 11. Click on the cell that contains 'End Date:' and type the date you wish for the project to be completed
- 12. Click on the Task Summary column in the cell next to Task Number 1 and write the following: 'Determine Project Information'
- 13. Click on the Task Description





- 14. Type 'Answer the 10 questions prompted to begin brainstorming this project.'
- 15. Click on the 'Task status' in the cell to the left.
- 16. Click the drop-down arrow to set the status
- 17. Click the status: Completed
- 18. Click on the next row down
- 19. Click on the Task Number cell
- 20. Type the number 2
- 21. Click on the Task summary column
- 22. Type 'Plan out Project' in the Task Summary column
- 23. Click on the Task Description cell
- 24. Type 'Complete the sub-tasks needed to plan out the project.' as the description
- 25. Click on the Task Number cell for the next row
- 26. Type '2.1' for the next sub-task of the project
- 27. Click on the Task Summary column
- 28. Type 'Buildout Work Breakdown Structure' in the Task Summary column
- 29. Click on the Task Description column
- 30. Type 'Build out a complete work breakdown structure by adding tasks and subtasks that need to be completed. This will house all steps needed to complete the project' in the task description.
- 31. Click the drop-down arrow to set the status
- 32. Click the status: In Progress
- 33. Click on the Task Number cell for the next row
- 34. Type 2.2 for the next sub-task of the project
- 35. Click on the Task Summary cell on the next row
- 36. Type 'Buildout Project Budget'
- 37. Click on the Task Description for the task
- 38. Type 'Using online research, estimated numbers, and online pricing determine the budget of this project.'
- 39. Click on the drop-down arrow to set the status
- 40. Click the status: 'Not Started'
- 41. Click on the Task Number cell on the next row
- 42. Type '2.3'
- 43. Click on the Task Summary cell for the row
- 44. Type 'Determine Project Team'
- 45. Click on the Task Description for the task



- 46. Type 'Determine who all will help complete this project. This list could include friends, teachers, parents, guardians, family members, and even contractors'.
- 47. Click on the drop-down arrow to set the status
- 48. Click the status: 'Not Started'
- 49. Click on the Task number cell on the next row
- 50. Type '2.4'
- 51. Click on the Task Summary cell for the row
- 52. Type "Assign Tasks to Team Members"
- 53. Click on the Task Description for the task
- 54. Type 'Add an 'Assignee' name next to each task that that individual is responsible to complete in the Work breakdown structure.'
- 55. Click on the drop-down arrow to set the status
- 56. Click the status: 'Not Started'
- 57. Add as many tasks, and sub-tasks as you need to complete the project. Use the answers to the questions on the Project Information tab to build out your project.
- 58. Add Borders
- 59. Format text color and font
- **60.Alternate Colors** 
  - a. If needed, add additional rows to the spreadsheet
  - b. If needed, do online research to determine what steps are needed to complete the project. For example, if the student wants to build a backyard planter box, they can find the steps online and then add them to their work breakdown structure. Note: The project will want to have around 30 tasks needed to complete. Use the sample for guidance.
- **61.** For each task that is added, also add a task status, task number, task description, task assignee, start date, and end date

#### **Project Budget Calendar**

- 1. Open Google Drive
- 2. Navigate to the Sheet created in Project 4
- 3. Click on the sheet: 3. Project Budget Calculator
- 4. Referencing the Work Breakdown Structure completed earlier in the project, identify the first task that is a financial expense (a purchase that will need to be made, or a service to be paid for)
- 5. In the first row, add the following information for your first purchase needed: Task Number, Task Summary, Item, Estimate
- 6. Format Column D-F to currency





	<ol> <li>In the next row, add the information for your next expense item</li> <li>Complete this step until all items that you will need to be purchased are listed. Note: You may have multiple items for one task, which is to be expected. List out each item as a different row, be sure to include the task number and summary for clarity when looking at your budget in the future.</li> <li>Click on the cell F6</li> <li>Type a formula that calculates the (Estimate Amount - Actual Cost)</li> <li>Use the fill handle to fill to F16</li> <li>Type the formula: '=sum()'. Click and drag to highlight all of the costs just listed.</li> <li>Select the Totals</li> <li>Chance size to 14 Bold</li> <li>Change Font and Colors</li> <li>Use Alternating Colors</li> <li>Insert an Image</li> <li>Remove extra Column and Rows</li> <li>Click on Column or Row</li> <li>Press CTRL+SHIFT+(right arrow or down arrow)</li> <li>Right-Click</li> <li>Delete Column or Rows</li> <li>Please Submit to your Learning Management System</li> <li>You have now completed the planning of your project, it's time to get started! Please submit this to your Learning Management System.</li> </ol>
Reflection	Discuss projects that students may want to complete. Where in their lives can they have a project that brings joy to others?
Extend	<ol> <li>Expand on the project and make a plan to complete the project</li> <li>Create a workspace calendar and add the dates on the calendar with reminder alarms</li> </ol>





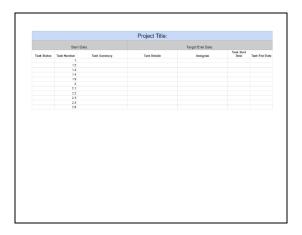


#### Template

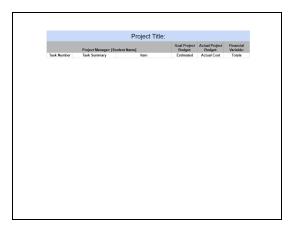
Answer:

#### Sample

Question:	Answer:
In your own words, what is the big picture vision of the project?	To make my backyard a place where I can bring my grandparents over and enjoy being outside. My backyard would have games they like to play, furniture that is sized so they can sit and stand with ease because they struggle getting up.
Why do you want to accomplish this project?	I want to create a space to gather that is comfortable for my grandparents and me and that will bring joy to others
Is there a deadline that you need this project to be completed by?	Yes
If so, what is the deadline?	The deadline would be early summer.
Does this project cost money?	Yes
Who will do the work of this project?	Myself, My Mom, My Dad
What help will you need for this project?	I will need help with the cost of the project, getting my parents approval to change how the backyard is organized, and help doing the labor.
How will you determine if this project is successful?	The definition of success for this project would be that during the summer I will invite my friends over to my backyard
Provide a detailed summary of the project.	In summary, this project will include building a table and couch that is easy for them to sit at, building a corn hole game, building a giant Jenga game, and redecorating the backyard with plants that my grandmother loves to smell, making or buying shades, rugs, and pillows to make it look nice.



Shark Dada May 01 0000								
Start Date: May 21,2022			Target End Date: September 1, 2022					
Task Status	Task	Task Summary	Task Details	Assignee	Task Start	Task End		
In Progress	- 1	Answer the 10 questions	Answer the 10 questions prompted to	Kaitey	5/12/2022	5/13/202		
In Progress	2	Complete the sub-tasks	Complete the sub-tasks needed to	Kaitey	5/12/2022	5/14/202		
Not Started	2.1	Build out work breakdown	Build out a complete work	Kaitey	5/12/2022	4/14/202		
On Hold	2.2	Create Project Budget	Using online research, estimated	Kaitey	5/12/2022	5/14/202		
On Hold	2.3	Determine Project Team	Determine who all will help complete	Kaitey	5/12/2022	5/14/202		
In Progress	2.4	Assign Tasks to Team	Add an "Assignee" name next to each	Kaitey	5/12/2022	5/14/202		
Completed	3	Build a Table		Kaitey	5/23/2022	5/27/202		
In Progress	3.1	Find Online Plans	Research online for the best outdoor	Kaitey	5/24/2022	5/24/202		
Not Started	3.2	Purchase supplies for table	Go to Home Depot and get supplies	Dad	5/25/2022	5/25/202		
Not Started	3.3	Build the table	Plan a day and build the table	Kaitey	5/26/2022	5/26/202		
In Progress	4	Build outdoor Jenga Set	·	Kaitey	5/30/2022	6/3/2022		
Not Started	4.1	Find Online Plans	Research online for the easiest	Kaitey	5/31/2022	5/31/202		
In Progress	4.2	Purchase supplies for Jenga	Get the supplies needed from Home	Dad	6/1/2022	6/1/2022		
In Progress	4.3	Build the Jenga Set	Plan a day to build the Jenga set	Kaitey	6/2/2022	6/2/202		
Not Started	5	Redecorate the Backyard		Kaitey	6/6/2022	6/13/202		
Not Started	5.1	Create a Pinterest Board of	Spend 1-2 hours on Pinterest finding	Kaitev	6/7/2022	6/8/202		



Project Title: Backyard Refresh									
Project Manager; [Student Name]			Goal Project Budget:	Project Budget:	Financial Variable:				
Number	Task Summary	Item	Estimated	Actual Cost	Totals				
3.2	Forchase Table	pressure treated boards	\$30.00	\$27.00	#NAME?				
3.2	Forchase table Forchase table Forchase topplies	pressure treated boards	\$15.00	\$19.00	#NAME?				
3.2		5 exterior wood screws	\$4.00	\$4.00	#NAME?				
3.2		wood glue	\$5.00	\$5.00	#NAME\$				
4.2		6 - 2x4's (8 feet long)	\$25.00	\$25.00	#NAME?				
4.2	for longe Soppiles	sandpaper (180 grit)	\$6.00	\$10.00	#NAME?				
5.3	Find and Buy Rug	5x8 outdoor rug	\$75.00	\$70.00	#NAME\$				
5.4	nna ana soý	6 large pots	\$300.00	\$302.00	#NAME\$				
5.5		4 EISŸ Wall an ana	\$200.00	\$300.00	#NAME?				
5.6	Arta ana soy	1 hanging swing	\$150.00	\$140.00	#NAME?				
5.7	Find and Buy	6 large plants	\$300.00	\$300.00	#NAME?				
	11.000		\$1.110.00	\$1,202.00	#NAME?				



## Unit 3 Final Challenge

Eighth Grade Unit 3 - Project 5

## Notes & Preparation



Project length: 1 class

• **Instructor note**: Use this lesson as an assessment to check for student understanding.

Files to load: None

#### Content Standards



CA CS Standards:

6-8. DA.7, 6-8. DA.9, 6-8. AP.11

ISTE Standards:

#3, #4, #5, #6 NET Standards

#3, #4, #5

#### **Engage**



#### **Opening**

You have opened a \$30,000 credit to purchase your dream car and complete all your projects. Now what?

#### **Project Description**

Once you have received the new funds, you must begin to make payments to repay the loan. It is not as simple as borrowing \$100 and paying back \$100. With any type of loan, there are terms and conditions. People or banks lend money as an investment and plan to get repaid back not only their original loan amount but also an additional amount. This additional amount is called interest, the cost of borrowing money.

Navigate to <a href="https://www.indiana.edu/~tedfrick/loan.html">https://www.indiana.edu/~tedfrick/loan.html</a> for an example.

#### Web Resources for more Exploration



Navigate to the following resources to gain more insight into the cost of borrowing money:

- How Does Business Loan Repayment Work?
- SBA Loan Calculator | CDC Small Business
- <u>Understand the Total Cost of Borrowing Wells Fargo</u>





#### **Additional Emphasis**



- Review the following terms with the students:
  - Payment schedule The amount to be paid for a loan in installments, determining how often and over what period of time the loan will be paid off.
  - Principal The amount you borrowed and must pay back.
  - o Interest What the lender charges for lending you the money.
  - Balance The amount left to pay on your loan.
  - Review and give examples to help students understand what the principal of the loan is and what the interest of the loan is.
  - Demonstrate how to complete the spreadsheet.

#### Learning Outcomes





- Know the difference between principal and interest and how they make up the payment of a loan.
- Replicate a loan repayment plan to understand all the components of repaying a loan.

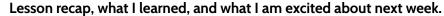
#### **Project** Steps



#### Have the student:

- 1. Use advanced search techniques to review the following terms for a better understanding of the cost of borrowing money:
  - a. Principal
  - b. Interest
  - c. Interest rate
  - d. Loan terms
  - e. Balance

#### Reflection





As each class comes to a close, discuss the specific steps taught that day. Review with students what they learned about the cost of borrowing money.

#### **Extend**



Students may research bank loan applications to become aware of the information needed to obtain a bank loan.





## Eighth Grade Final Challenge Student Handout

#### **Directions**



This is a final challenge to showcase all the skills you have learned throughout this unit. This project will be turned in before the end of the class today. Finish as much as you can.

#### Have the Students:

- 1. Launch a spreadsheet program
- 2. Save and rename
- 3. Type the student name in Header
- 4. In cell A1 type Business Loan Repayment Schedule
- 5. Select cells A1-H1, and format font to size 14 bold
- 6. Merge and Center
- 7. In cell A3 type Loan Details
- 8. Select cells A3-B3
- 9. Merge and Center
- 10. In cell E3 type Payment
- 11. In cell F3 type Principal
- 12. In cell G3 type Interest
- 13. In cell H3 type Balance
- 14. In cell A4, type Amount of Loan
- 15. In cell A5, type Interest Rate
- 16. In cell A6, type **Times in a Year**
- 17. In cell A7, type Number of Years
- 18. In cell A8, type Number of Payments
- 19. In cell A9, type Monthly Payments
- 20. Italicize the contents in cell A9
- 21. n cell A11, type Total Payments
- 22. Italicize the contents in cell A11
- 23. In cell A12, type **Total Interest**
- 24. Italicize the contents in cell A12
- 25. Adjust the width of column A
- 26. Enter the following financial information for the loan in column B
- 27. Amount of Loan: \$30,000 (format B4 to currency)
- 28. Interest Rate: 11%
- 29. Payments in a year: 12
- 30. Number of years: 3
- 31. Enter a product formula in cell B8 to determine the Number of







- 32. Payments (multiply Times in a Year by the Number of Years)
- 33. In cell D4 type 1 (For Google Sheets type 2 in cell D5 and select cells D4-D5)
- 34. Drag the fill handle to row 39 (Google Sheets users skip to step 34)
- 35. Click on the Auto Fill Option icon
- 36. Select Fill Series
- 37. In cell B9 type formula =**PMT(B5/B6,B8,B4)** to determine the monthly payment (Interest Rate divided by Times in a Year, Number of Payments, Amount of Loan).
- 38. In cell B11 type formula **=B8\*B9** to determine the total payment (Multiply Number of Payments by Monthly Payments)
- 39. In cell B12, type **=B11+B4** formula to determine the Total Interest (*Total Payments minus Amount of Loan*)
- 40. In cell G4, type =**B4\*(B5/B6)** to determine the Total Interest [Amount of Loan multiplied by (Interest Rate divided by Months in a Year)]
- 41. Select columns E-H
- 42. Format columns to currency
- 43. In cell E4 type formula =\$B\$9. Note: Dollar signs in a formula represent an absolute cell reference which refers to a cell in a specific location. If the position of the cell that contains the formula changes, the absolute reference remains the same. If you copy the formula across rows or down columns, the absolute reference does not adjust.
- 44. Copy this formula to the end of the loan term by double-clicking on the fill handle (bottom right corner) of cell E4
- 45. In cell F4 type formula =-**E4-G4** to calculate the Loan Principal for cell F4 only (Negative Payment minus Interest)
- 46. In cell H4 type formula **=B4-F4** to calculate the Loan Balance (Amount of Loan minus Principal)
- 47. In cell G5 type formula =**H4**\*(\$B\$5/\$B\$6) to calculate the interest (Interest Rate divided by Times in a Year)
- 48. In cell F5 type formula =-**E4-G5** to calculate the principal (Negative *Payment minus new Interest amount)*
- 49. In cell H5 type formula =**H4-F5** to calculate the new balance (old balance minus the new principal amount)
- 50. Select cells F5-H5 and use the fill handle to copy the formulas to the end of the loan term
- 51. Apply Borders as needed
- 52. Use Alternating Colors and Text Colors as needed
- 53. Adjust the columns so everything fits on one page
- 54. Rename this worksheet: Payment Schedule
- 55. Create a Line Graph comparing Principal and Interest over the term of the loan:





- a. Select the contents of the columns for Principal and Interest for the full term of the loan, including the column Headers
- b. Insert a Line Chart
- c. Title the chart Principal vs. Interest
- d. Title the Horizontal Axis Payment Schedule Months
- e. Title the Vertical Axis Payment Dollars

#### Sample

