Directions:

Read Carefully. Complete understanding may require reading the material more than once. This counts approximately half of a test grade. While you are working on this project, your instructor cannot offer assistance. However, you may in most classes seek out alternate sources of help: other students, family, friends, etc.

You will turn in the answer sheet for this project to your instructor. Be sure to carefully record your answers on this answer sheet as it is the only thing that you will be turning in. Main Campus Math Lab students will sign in at the Instructor Station to hand in the project before taking Test 6. Other students will turn in the project answers to their instructor. Once this project is turned in, you will not have an opportunity to redo it. Therefore, you should make sure you do a good job the first time.

At LCC you receive grades in courses that you take in the form of a ‘report card’. When was the last time you looked at your financial report card? If you don’t have a budget, aren’t saving or have never looked at your monthly cash flow (how much money you take in verses how much you spend) then you are not alone. Many adults fail to make the financial corrections necessary to obtain a financially secure life simply because they’ve never looked at their report card. You can obtain a free personal credit report by going to [www.ftc.gov](http://www.ftc.gov). That could be your first step to financial freedom.

Four steps to financial freedom are going to be taught during this project.

1. Use a Budget
2. Get Out of Debt
3. Start Saving
4. Put Your Money to Work

After each step, there is an activity with questions for you to answer to demonstrate your understanding.

**Step 1: Use a Budget!**

A budget could allow you to become financially secure. This project should teach you how to put your hard-earned money to WORK for you! The sooner you start, the sooner you’ll be free from the heavy weight of bills, debt and financial frustration.

So, let’s look at monthly cash flow chart and use that to begin a budget. The goal of a monthly cash flow chart is to see where your money is going. Ideally the cash flow chart will show extra money at the end of the month. Setting up a savings program or reducing debt will be a natural step at this point.
This first activity will make use of a chart to track Carly’s monthly cash flow. First you will answer a series of questions about Carly’s monthly expenses.

After the completion of each activity transfer your answers to the ANSWER SHEET at the end of this project. That is what you will be submitting to be graded when you’ve completed all four activities in this project.

**Activity 1**

Write your answers in the answer blanks. The letters next to each amount are there to help you place the amount in the Monthly Cash Flow chart that follows this activity.

1. Carly’s salary is $48000 a year. This is her gross yearly salary; her yearly salary before anything else is deducted such as taxes. Calculate her gross *monthly* salary.

   $ __________

2. Plan on taxes taking 30% of her salary. How much tax does Carly pay each month?

   $ __________

3. Compute Carly’s monthly take-home pay. This is her *net* take-home pay since it is how much Carly gets to keep after the government takes its share. (Subtract line 2 from line 1)

   $ __________ (A)

   *Carly’s rent each month for her apartment is $650.*

   $ __ 650 (B)

4. Water, electricity, trash pickup and natural gas are other expenses that cost additional money each month. Carly’s rent includes water, gas and trash pickup but she must pay her own electric bill. She’s on the ‘budget plan’ and pays an additional 4% of her rental fee each month for electricity. How much does Carly spend on electricity each month?

   $ __________ (C)

   Carly knows that her cell phone plan costs her $80/month.

   $ __ 80 (D)

   Cable, satellite, or broadband services are estimated at $65/month.

   $ __ 65 (E)

Carly wants to purchase a car on credit. Before calculating her expenses we will go through an example to let you get familiar with working on an Excel Worksheet. Follow the directions below to open the worksheet titled Amortization_Schedule_for_Activity_1.
We will use this worksheet to determine the monthly payments on a loan of $12,500 for 4 years at 8% interest.

Enter the following in the indicated cells:
- 8% as a decimal in 11D
- $12,500 in 12D Be sure to hit ENTER after finished entering
- You should see $305.16 in 13D. This is the expected monthly payment. The bank will automatically round this up to the next dollar; $306.

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Use with Activity 1

Name: _______________________

Student Number: ____________

| Number of Years | 4 |
| Interest Rate   | 0.03 As a decimal |
| Principal       | $12,500.00 |
| Monthly Payment | $305.16 |
| Total interest paid | $2,147.75 |

<table>
<thead>
<tr>
<th>Payment Start of month</th>
<th>Balance</th>
<th>Interest</th>
<th>Principal Paid</th>
<th>Total Interest</th>
<th>New Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$12,500.00</td>
<td>$83.33</td>
<td>$221.83</td>
<td>$83.33</td>
<td>$12,278.17</td>
</tr>
<tr>
<td>1</td>
<td>$12,278.17</td>
<td>$81.85</td>
<td>$223.31</td>
<td>$165.19</td>
<td>$12,054.66</td>
</tr>
<tr>
<td>2</td>
<td>$12,054.86</td>
<td>$80.37</td>
<td>$224.80</td>
<td>$245.56</td>
<td>$11,830.07</td>
</tr>
<tr>
<td>3</td>
<td>$11,830.07</td>
<td>$78.87</td>
<td>$226.29</td>
<td>$324.42</td>
<td>$11,603.77</td>
</tr>
<tr>
<td>4</td>
<td>$11,603.77</td>
<td>$77.36</td>
<td>$227.80</td>
<td>$401.78</td>
<td>$11,375.97</td>
</tr>
</tbody>
</table>

updated 02-19-09
5. Carly wants to borrow $15,000 to buy a car and have it paid off in the next 4 years. Since she has a good credit rating, she can finance the car at 6% interest. Use these amounts and the Amortization_Schedule_for_Activity_1 to calculate her monthly car payment.

A. Her exact monthly payment would be $ ___________ (remember this will be in cell 13D)

B. But for the purposes of a budget we want to round **UP** to the next dollar. Remember the example above rounded $305.16 to $306.

$ ___________ (F)

C. The total interest paid after 4 years at 6% (copy exact amount from cell D14)

$ ___________

D. If Carly had a poor credit rating she could have to pay 18% over the same 4 years. Change the interest rate on the amortization schedule to 18% and then hit ENTER. How much would the car payment/month be for someone with poor credit? (No rounding this time, use the exact monthly payment.)

$ ___________

E. Poor credit is expensive! How much money per month does Carly save on her car payment simply by having good credit? Don’t use rounded amounts here, find the exact difference. (Subtract 5A from 5D)

$ ___________

F. The total interest paid after 4 years at 18% (copy exact amount from cell D14)

$ ___________

G. Exactly how much total interest does Carly save by having good credit? Find the difference between answers F and C.

$ ___________

Good credit pays great dividends!
6. If Carly purchases a car, she will have many other expenses that need to be budgeted for.

   A. Carly must have car insurance in Michigan. The cost for Carly is about $1,500 a year since she is young and has a good driving record. How much should Carly allocate for car insurance each month?

      $ \underline{\text{__________}} \quad (G)

   B. Car maintenance will be estimated at $45/month: oil changes, new tires, etc.

      $ \underline{\text{45}} \quad (H)

   C. License & Registration fees for Carly’s car are $120/year. How much should be budgeted each month to pay these fees when they are due?

      $ \underline{\text{__________}} \quad (I)

   D. Driving to school and work each week she notices that she uses about 9 gallons of gasoline. When Carly completed her cash flow chart, the price of gasoline was $3.00/gallon. How much should her monthly budget be for gasoline? Assume 4 weeks in a month.

      $ \underline{\text{__________}} \quad (J)

7. Carly decides to purchase renter’s insurance to protect her property from mishaps at the apartment complex. Her renter’s insurance policy costs $300/year. What is the monthly cost of her renter’s insurance?

      $ \underline{\text{__________}} \quad (K)

8. Food is a monthly expense. Carly has no idea how much she spends on food since she hasn’t been tracking it. She agrees to track it and let you know. After one month Carly reports that she spent $150 eating out (Starbucks, Kennedy Cafeteria, McDonalds, Cheddars, Damon’s, Quality Dairy, etc.) and $350 at the grocery store. Without curbing her food spending, how much money should Carly budget for food each month?

      $ \underline{\text{__________}} \quad (L)

9. Carly knows that she has medical/health expenses each month. Expenses such as medical insurance premiums, medical co-payments for the occasional Doctor/Dentist/Chiropractor/Optometrist appointment and/or drug prescriptions and refills. Carly budgets 6% of her monthly take-home pay (net pay) to these expenses. How much does Carly budget for these expenses?

      $ \underline{\text{__________}} \quad (M)
10. Carly dreams of a vacation to Florida! She plans to budget 2% of her monthly take-home pay (net pay) pay for this trip. She knows that if she has to borrow money to go on a vacation then she can’t afford the vacation. How much should Carly budget each month for this trip?

$ ___________ (N)

11. She would like to start an emergency fund for those unexpected bumps that happen in life: extended illness, accident, loss of job, legal expenses, sick child, etc. She learned that she should save enough money for 3-6 months of expenses. She decides to save 3 months of her gross monthly salary. (#1A) How much does Carly plan to set aside in her emergency fund?

$ ___________

How much does she need to save each month if she’d like that money saved within 5 years (60 months)?

$ ___________ (P)

An ideal budget will have every dollar allocated to a major category. Some individuals literally have envelopes with cash for each category of their budget. They fill the envelopes after cashing their paycheck. They then are very disciplined; if an envelope is empty then they have to stop spending in that category. This plan also gets you back into using cash rather than relying on credit cards.

Using Carly’s Monthly Cash Flow Chart (on the following page), fill in the corresponding letters from this worksheet to the Sub-Total column or Total Column as indicated. Then complete each white box in the Total column and add together all of Jane’s total monthly expenses. If she has no expenses in a category, leave the box blank. (The spot with letter S is also left blank at this time.)
## Carly’s Monthly Cash Flow Chart

<table>
<thead>
<tr>
<th>Item</th>
<th>Sub-Total</th>
<th>Total</th>
<th>Target %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Fund</td>
<td>P</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Savings</strong></td>
<td></td>
<td>$</td>
<td>5 – 10%</td>
</tr>
<tr>
<td>Housing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rent</td>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home/renters insurance</td>
<td>K</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Housing</strong></td>
<td></td>
<td>$</td>
<td>25 – 35%</td>
</tr>
<tr>
<td>Utilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water, Gas (included in rent payment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trash (included in rent payment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable/Satellite</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Utilities</strong></td>
<td></td>
<td>$</td>
<td>5 – 10%</td>
</tr>
<tr>
<td>Food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groceries</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurants</td>
<td>350</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Food</strong></td>
<td></td>
<td>$L</td>
<td>5 – 15%</td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car Payment</td>
<td>F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasoline costs</td>
<td>J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance fees (oil change, tire rotation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repairs and Tires</td>
<td>H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car Insurance</td>
<td>G</td>
<td></td>
<td></td>
</tr>
<tr>
<td>License &amp; Registration fees</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Transportation</strong></td>
<td></td>
<td>$</td>
<td>10 – 15%</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Medical/Health</strong></td>
<td></td>
<td>$</td>
<td>5 – 10%</td>
</tr>
<tr>
<td><strong>Total budgeted to Clothing</strong></td>
<td></td>
<td>$</td>
<td>2 – 7%</td>
</tr>
<tr>
<td><strong>Total budgeted to Charitable Gifts</strong></td>
<td></td>
<td>$</td>
<td>5 – 15%</td>
</tr>
<tr>
<td><strong>Total budgeted to Personal</strong></td>
<td></td>
<td>$</td>
<td>5 – 10%</td>
</tr>
<tr>
<td>Vacation</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Recreation</strong></td>
<td></td>
<td>$</td>
<td>5 – 10%</td>
</tr>
<tr>
<td>Debts (Hopefully $0.00)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Loan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total budgeted to Debts</strong></td>
<td></td>
<td>$0</td>
<td>5 – 10%</td>
</tr>
<tr>
<td><strong>Total budgeted expenses (add all items in the shaded columns)</strong></td>
<td></td>
<td>$</td>
<td></td>
</tr>
</tbody>
</table>
12. What is the ‘Grand Total’ of Carly’s expenses?

$ ___________ (Q)

Now subtract that amount from her monthly take-home pay (answer from #3a)

$ ___________ (R)

This is how much money Jane should have left-over at the end of the month!

13. Carly sees that she has too much unbudgeted (disappearing) income and that she has three areas that are currently not budgeted: Clothing, Charitable Gifts and Personal. So, she decides to budget $200 for charitable donations with the remaining money going into the Personal category for hair care, cosmetics, gifts, and other miscellaneous expenses. How much money will she budget to the Personal category of the cash flow chart?

$ ___________ (S)

14. How much money (after #13) should be left-over at the end of the month to disappear?

$___________

This project is meaningless unless you begin to put some of the ideas taught into action! Use the Personal Monthly Cash Flow Chart available on Angel to review your own cash flow and create a working budget. You will find much more detail under each category allowing you to make a very detailed budget!

As someone once said, “If your out-go exceeds your income, your upkeep will become your downfall.”

**Step 2: Get Out of Debt!**

Did you notice what was missing from Carly’s budget? She had no debt outside of her car payment which will be paid off in 4 years. She will eventually own her car and until she purchases another car she will have NO car payment! The money that was budgeted for a car payment can now be put to work elsewhere in her budget. Her excellent credit rating and timely past payments in addition to her emergency savings will make her eligible for some of the lowest mortgage interest rates available when she’s ready to purchase her first home. Banks are more likely to lend money to someone who has saved money. That makes you a low risk borrower, someone the banks really WANT to lend money to so they will compete with each other to get your business! That competition means a lower interest loan for you.
Now let me introduce you to Carly’s friend Joan. Even though Joan and Carly both make EXACTLY the same amount of money, you might think that Joan is wealthier than Jane. Joan owns a home, drives an expensive car, wears expensive clothes, goes on costly vacations and eats at exclusive restaurants seemingly without care or concern of costs. However, while Carly had very little debt, Joan is under a barbell of debt. Joan has 3 credit cards and a gas card that she carries balances on. Joan’s journey to financial health begins with the first dollar that she chooses to put toward her debts rather than for a Starbucks coffee.

Activity 2: Get Joan out of debt!

Here is a list of all of Joan’s debts: note the higher interest rate on her car due to her poor credit. If Joan could pay off the entire balance of one of her credit cards (the lowest) and then apply that minimum payment to another credit card she would start to get ahead.

<table>
<thead>
<tr>
<th>Item</th>
<th>Balance</th>
<th>Minimum Payment</th>
<th>Interest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visa</td>
<td>1400</td>
<td>80</td>
<td>18%</td>
</tr>
<tr>
<td>Second mortgage (line of credit)</td>
<td>6000</td>
<td>120</td>
<td>9%</td>
</tr>
<tr>
<td>Car loan</td>
<td>14400</td>
<td>400</td>
<td>15%</td>
</tr>
<tr>
<td>MasterCard</td>
<td>1400</td>
<td>70</td>
<td>20%</td>
</tr>
<tr>
<td>Coldwater Creek Clothing Store</td>
<td>1600</td>
<td>65</td>
<td>21%</td>
</tr>
<tr>
<td>Gas Card</td>
<td>400</td>
<td>40</td>
<td>18%</td>
</tr>
<tr>
<td>Mortgage</td>
<td>110000</td>
<td>840</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

Putting Joan’s debt in ascending order is the first step.

<table>
<thead>
<tr>
<th>Item</th>
<th>Balance</th>
<th>Minimum Payment</th>
<th>Interest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Card</td>
<td>400</td>
<td>40</td>
<td>18%</td>
</tr>
<tr>
<td>Master Card</td>
<td>1400</td>
<td>70</td>
<td>20%</td>
</tr>
<tr>
<td>Visa</td>
<td>1400</td>
<td>80</td>
<td>18%</td>
</tr>
<tr>
<td>Cold Water Creek</td>
<td>1600</td>
<td>65</td>
<td>21%</td>
</tr>
<tr>
<td>Second mortgage (line of credit)</td>
<td>6000</td>
<td>120</td>
<td>9%</td>
</tr>
<tr>
<td>Car loan</td>
<td>14,400</td>
<td>400</td>
<td>15%</td>
</tr>
<tr>
<td>Mortgage</td>
<td>110,000</td>
<td>840</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

1. Joan needs to scrape together $__________ to payoff the entire balance of the gas card. (She could have a garage sale, work overtime, or pick up a temporary second job.)

2. The original minimum payment of $________ for the gas card would now be available to put toward the next card on the list (Master Card) while continuing to make the minimum payments on the other debts listed.

3. If she adds the $40 (the Gas Card minimum payment) to the minimum payment of $70 for her Master Card what would her new payment be? $___________.

updated 02-19-09
4. After the Master Card is paid off she could add this to the minimum payment for her Visa Card allowing her to make monthly payments of $____________.

5. After the Visa is paid off, how much will she be able to pay each month on the Coldwater Creek Credit Card? $ ___________

This continues until Joan is debt free!

Consider this: The average American credit card debt in 2004 was $8,400. (Bankrate.com, Consolidating Your Debt, September 20, 2004.)

6. With an annual interest rate of 18%, a payment of $246.75/month would payoff the balance in 4 years. It would cost $ ___________ ($246.75 times 48 payments) to payoff the $8,400 debt.

7. So you paid $ ___________ in interest for the privilege of buying on credit!

Step 3: Start Saving!

Money magazine says that 75% of families will have a major negative financial event in any 10 year period. (“Financial Planning 101”, Money (March 1989), pg 78)

Activity 3

Open the Excel spreadsheet “Savings_Really_Adds_Up”.

Instructions for accessing the spreadsheets for this Project

Go to the LCC homepage
Log in to Angel
Click on your math course site

**Main Campus lab students**
- Click on the MATH 050 - MATH 107 - MATH 112 tab (Main Campus lab students)
- Click on Math 050
- Click on Math 050 Packet and Project Materials
- Click on Project Materials
- Double click on the name of the spreadsheet that you want to open

**Off Campus lab students**
- Click on the Course Materials & Information Tab
- Click on Course Packet Documents
- Click on Math 050
- Double click on the name of the spreadsheet that you want to open

**All Other students**
- Follow your instructor’s directions in your Angel site

updated 02-19-09
Suppose that you've saved $3000 and opened a Money Market fund earning 4%. You set up the account options so that it electronically transfers $10/month into your Money Market fund from your checking account. Enter 0.04(4%) into cell D18 and 10 in cell D20. Be sure to hit ENTER after you've entered the last information. You will notice that your total contribution of $3480 will be worth $4039.19 after 4 years.

1. On the same spreadsheet change the interest rate to 6%, leave the starting amount and additional payments at $10/month. What will the account be worth after 4 years at 6%?
   $__________

2. How much more money will you have after 4 years at 6% than you would at 4%?
   $__________

3. Keep the interest rate at 6%. Leave the starting amount at $3000, but increase the additional savings to $20/month. What will the account be worth after 4 years with the increased monthly savings at 6%?
   $__________

4. Now change the additional payments to $0/month, leave the starting amount at $3000. Use trial and error to see what interest rates will double your original investment of $3000 to $6000 in 4 years. (Recall that an interest rate of 0.135 represents 13.5%)
   To the nearest tenth of a percent what interest rate would be required? ________%

5. Finding an investment that pays high interest is always nice, but it’s unlikely you will find an investment fund that will pay a percentage this high. Let’s try something else. If the best interest rate you can find is 6% use trial and error to determine how much additional money you would need to contribute monthly to double the original $3000 investment to $6000 in 4 years. Round to the nearest dollar $__________.
Step 4: Put Your Money to Work!

Once you’ve paid off all debt (excluding your home) and have your emergency fund in place, it’s time to save for the future. You can expect that in the future things will be much more expensive than they are today. This is called inflation. How are you going to make your money work for you to beat inflation? First, you need to learn about compound interest.

Activity 4

Say there are two sisters, each of whom has $2,000 to invest. One chooses to invest in an account yielding simple interest of 5 percent. This means that each year her money is increased by 5 percent of the original $2,000 ($100). After year one, she has $2,100; after year two, $2,200; after year three, $2,300; and so on, never earning more than $100 each year.

1. After 10 years what would the value of the original investment of $2000 invested in the simple interest (I = PRT) account be worth? $________________

The other sister, on the other hand, puts her $2,000 in an account that returns 5 percent compound interest. This means that she gets interest not only on her original $2,000, but on the interest that is added to it as well. At the end of year one, she too has $2,100. In year two, she earns another 5 percent -- but now it's 5 percent of $2,100, not of $2,000. So instead of getting $100 added to her money, she gets $105, bringing her total to 2205.

2. By the end of the 10th year her investment will be worth $3257.79. How much more money is earned when the 5% is compound interest, not simple? $______________

This difference between compound interest and simple interest at first seems small; but, it increases dramatically with two factors: time and rate of return. Let's now extend the interest comparison out 25 years.

3. After 25 years what would the value of the original investment of $2000 invested in the simple interest account of 5% be worth? $______________
Calculating the value of an account invested in a compound interest account by hand is cumbersome. An Excel spreadsheet handles the math quite nicely by computing the interest after each year and keeping a total running balance.

Open the Excel spreadsheet called “Activity_4”

**Instructions for accessing the spreadsheets for this Project**

- Go to the LCC homepage
- Log in to Angel
- Click on your math course site

**Main Campus lab students**
- Click on the MATH 050 - MATH 107 - MATH 112 tab (Main Campus lab students)
- Click on Math 050
- Click on Math 050 Packet and Project Materials
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**Off Campus lab students**
- Click on the Course Materials & Information Tab
- Click on Course Packet Documents
- Click on Math 050
- Double click on the name of the spreadsheet that you want to open

**All Other students**
- Follow your instructor’s directions in your Angel site

- Enter an Interest Rate of 5% (as a decimal .05) in cell C11.
- Enter a Starting Amount of $2000 in cell C12.
- Enter 0 Additional Yearly Savings in cell C13.

4. Determine the value of the original investment of $2000 (with $0 additional yearly savings) invested in a 5% compound interest account after 25 years by looking down the New Balance Column (E) to the end year 25 (E44).

$__________________

5. Determine the difference between the simple and compound interest accounts after 25 years. (Simple interest was calculated in Activity 4, #3)

$__________________

6. After 40 years the single investment of $2000 invested at 5% simple interest would be worth $6000. Using the Spreadsheet determine the value of this one time $2000 investment in a 5% compound interest account after 40 years.

$__________________

You can see that as **more time passes the difference becomes much greater**.
Let’s see what affect interest rate or rate of return has on the value of investments.

7. How much would a one-time investment of $2000 be worth after 40 years at 7% compounded interest?
   $ _______________

8. How much would a one-time investment of $2000 be worth after 40 years at 10% compounded interest?
   $ _______________

As expected, higher interest rates are a good thing!!

Let’s see what additional yearly contributions will do to the value of your investments.

9. Start with the original $2000 investment at 5% and add an additional $600 per year (only $50/month) by typing 600 for Additional Yearly Savings (cell C13). Determine the Balance after 40 years.
   $ _______________

10. Over the 40 years you would contribute an additional $23,400, but will have earned how much more than a single investment after 40 years? (#6 above) $ _______________

Additional yearly contributions really add up and this is something you can control!

So there are lots of variables that control the value of investments you make:
   • The size of the interest rate.
   • Compound or Simple Interest.
   • Number of years invested.
   • Continued yearly investments.

Let’s consider one more variable; when you start!

For your final problem consider two twins: Amy and Jason. Both put their money into a retirement fund that pays 9% compounded interest.

Amy starts saving $2000/year starting on her 19th birthday and continuing until her 27th birthday (8 years of savings) and then stops. She leaves the money in the retirement fund until she’s 65 for another 38 years or a total of 46 years of growth.
Jason saves nothing until his 27th birthday when he begins to save $2000/year and continues saving until he’s 65 (38 years of growth).

Open “Jason’s_Investment_Worksheet” to answer A below. Open “Amy’s_Investment_Worksheet” to answer B below.

11. Jason invests $2000/year for 38 years: $76,000 invested. How much money will Jason have on his 65th birthday? $ ___________

12. Amy invests $2000/year for 8 years: $16,000 invested. How much money will Amy have on her 65th birthday? $ ___________

13. Who has the most money on his/her 65th birthday? __________

14. What lesson does the story of Amy and Jason teach you about investing?

**BE SURE TO PUT ALL OF YOUR ANSWERS ON THE ANSWER SHEET AND TURN IT IN TO BE GRADED!**
Resources used for Financial Project:

The following resources were used and or consulted in creating this project. They are available for check out in the Lansing Community College library located on the main campus in downtown Lansing.


Covey, Dr Stephen. *The Seven Habits of Highly Effective People*


For further information you may want to visit:

www.investopedia.com  This web site has a tutorial section with definitions of stocks, bonds, mutual funds, economics, brokers and trading strategies. The tutorials are organized by level of expertise. A market simulation game will teach you some investment ropes and a financial calculator will let you determine how much you are earning every second at your job, among other things.
MATH 050
Financial Project
ANSWER SHEET
50 points possible: 1 point per blank

Name: ___________________________                   Student Number: ____________________

MATH Lab Instructor Use ONLY
Received by: _______     Date: __________
Scored by: _______     Score: _______     Date: __________

Activity 1. Write the following answers to Activity 1 below.

1. $________
2. $________
3. $________ (A)
   $__650__ (B)
4. $________ (C)
   $__80__ (D)
   $__65__ (E)
5. A. $________
   B. $________ (F)
   C. $________
   D. $________
   E. $________
   F. $________
   G. $________
6. A. $___________ (G)
   B. $____45_____ (H)
   C. $___________ (I)
   D. $___________ (J)

7. $_________ (K)

8. $_________ (L)

9. $_________ (M)

10. $_________ (N)

11. $_________ 
    $_________ (P)

12. $_________ (Q)
    $_________ (R)

13. $_________ (S)

14. $_________

Activity 2

1. $_________

2. $_________

3. $_________

4. $_________

5. $_________

6. $_________

7. $_________
Activity 3

1. $ ____________
2. $ ____________
3. $ ____________
4. ______ %
5. $ ____________

Activity 4

1. $ ____________
2. $ ____________
3. $ ____________
4. $ ____________
5. $ ____________
6. $ ____________
7. $ ____________
8. $ ____________
9. $ ____________
10. $ ____________
11. $ ____________
12. $ ____________
13. ____________
14. __________________________________________________________________________
   __________________________________________________________________________