

























































































































































**Lesson Description** Students develop a budget for a college student using a spreadsheet. They examine the student’s fixed, variable, and periodic expenses and revise to adjust for cash flow problems that appear on the first spreadsheet. Note: Instructions for using a spreadsheet are based on Microsoft Excel® but generally apply to other spreadsheet software. This lesson is designed to increase student awareness and appreciation of the efficiency of using computer technology in math applications. The use of a computer lab is recommended. If the lesson is taught with a few computers, increase the time required indicated below.

---

**Objectives** Students will be able to:

1. develop, analyze and revise a budget.
2. define and give examples of fixed expenses.
3. define and give examples of variable expenses.
4. explain how periodic expenses affect the budgeting process.
5. explain and give an example of a budget surplus and a budget deficit.
6. create a spreadsheet for a budget.

---

**Mathematics Concepts** organizing numerical data, spreadsheet application, problem solving

---

**Personal Finance Concepts** budget, gross and net income, payroll taxes, fixed expenses, variable expenses, periodic expenses

---

**Materials Required**

- computers with spreadsheet software
- copies of Activities 4-1 through 4-6
- transparencies of Visuals 4-1 through 4-6

---

**Time Required** 2-4 days

---

**Procedure**

**Get Ready**

1. Give a copy of Activity 4-1 to each student, and read the scenario together.
2. Explain the main features of a spreadsheet, using the example. Have students complete the spreadsheet using the instructions provided.

Note: if your spreadsheet program uses different methods for formulas, explain them as students progress through the steps.

3. When students are finished, display a copy of Visual 4-1, so students may check their work. Debrief with the following questions.
  - a. What is a budget? (*a plan of future income and expenses*)
  - b. Why did Janna’s parents tell her to make a budget? (*They wanted her to consider all income and expenses to make a careful decision about moving into an apartment.*)
  - c. What are fixed expenses? (*expenses that are the same every month*) Give some examples of fixed expenses. (*monthly rent, car payment*)
  - d. What are variable expenses? (*expenses that can vary from month to month*) Give some examples. (*food, clothing, entertainment*)
  - e. The table indicates that Janna has a surplus. Why does she have a budget surplus? (*She has more income than expenses.*)
  - f. Name some ways that Janna may be wrong about really having a budget surplus. (*Her income may be lower, and/or her expenses may be greater than indicated.*)

**Keep It Going**

1. Give a copy of Activity 4-2 to each student, and read the scenario together.
2. When students are finished, display Visual 4-2 (*or hand out copies if the print is too small to be seen*), so students may check their work. Debrief with the following questions.
  - a. What’s the difference between gross income and net income? (*Gross income is the total income that a person receives. Net income is gross income minus deductions.*)
  - b. What payroll deductions did Janna have? (*federal and state income taxes as well as FICA*) Explain that people may have many more payroll deductions for things such as medical insurance or gifts to charitable organizations. Janna only has taxes removed from her paycheck.
  - c. What is another name for net income? (*take-home pay*)
3. Give a copy of Activity 4-3 to each student, and read the scenario together.
4. When students are finished, display Visual 4-3 (*or hand out copies if the print is too small to be seen*), so students may check their work. Debrief with the following questions.
  - a. Why do you think that car insurance payments were labeled as “periodic expenses?” (*The payments only occur twice a year; not*

*every month. They do not occur regularly such as every week or month. They are payments that are made periodically, not regularly.)*

- b. According to your spreadsheet, what is the problem with a periodic expense? *(It makes the expenses higher in some months than others. In this case, the car insurance payments resulted in a negative surplus.)* Explain that a negative surplus is called a deficit.
  - c. What could Janna do to resolve her problem? *(Answers will vary, but students are likely to point out that she could save some every month so she would have the money when she needed it.)*
5. Give a copy of Activity 4-4 to each student, and read the scenario in Part I together. Have students revise their budget spreadsheets once more. When they're finished, display Visual 4-4 (or hand out copies if the print is too small to be seen), so students may check their work. Debrief with the following questions.
- a. On Janna's spreadsheet, where does she have a problem? *(In the months of November and May, she has a large negative surplus.)*
  - b. What is another term for negative surplus? *(deficit)*
  - c. How did you spread out her car payments? *(by setting some aside every month)*
  - d. Why does Janna still have a problem? *(She has a negative surplus every month.)*
  - e. What recommendations could you make to Janna? *(Janna must either increase her monthly income or reduce her monthly expenses.)*
6. Assign Part II. When students are finished, have them report how they reduced Janna's expenses and why they chose that approach to her budget problem.

### **Wrap It Up**

Review the main points of the lesson with the following questions.

1. What is a budget? *(a plan of future income and expenses)*
2. What are fixed expenses? *(expenses that are the same every month)*
3. Give some common examples of fixed expenses for a family. *(monthly rent, car payment)*
4. What are variable expenses? *(expenses that can vary from month to month)*
5. Give some common examples of variable expenses for a family. *(food, clothing, entertainment)*
6. What are periodic expenses? *(expenses that are made periodically, not*

*regularly)*

7. Give some common examples of variable expenses for a family. (*car insurance, property taxes*)
8. What is a budget surplus? (*A budget surplus occurs when income is greater than expenses.*)
9. What is a budget deficit? (*A budget deficit is a negative surplus; it occurs when expenses are greater than income.*)
10. How can a budget help individuals and families? (*A budget helps people examine income and plan expenses carefully so that the budget is balanced or has a surplus. It helps people prepare for the future.*)
11. How does the use of a spreadsheet help people prepare budgets? (*A budget spreadsheet makes the preparation easier and faster. It helps people develop different income and expense scenarios and make adjustments to prepare for the future.*)

**Check It — Assessment**

Give a copy of Activity 4-5 to each student. Have students read the scenario and complete the work. (*See Visual 4-5 for final spreadsheet and Visual 4-6 for a suggested written response.*)

**Going Beyond—A Challenge Activity**

Give a copy of Activity 4-6 to each student, and read the scenario. Have students revise their budget spreadsheets a final time. When finished, have students explain how their budgets changed and what Janna had to give up to take the trip.

Janna is a college sophomore. Next year, she and three friends want to live in an apartment instead of the dormitory. She went home for the weekend to convince her parents about this good idea. Friday night, Janna announced, “The university will increase fees for room and board next year from \$3,600 to \$4,050. What a rip-off! That’s \$50 more each month, and it’s not worth it. The dormitory is noisy at night when I study – a real distraction. The food in the cafeteria is barely edible, and it’s not healthy food. Fifty girls share the same bathroom, and it’s always dirty. People are really noisy.”

Now, Janna was sure she had her parents’ attention, so she continued her story. Heather, Amy, Lisa, and I found a furnished apartment close to campus with two bedrooms, living room, two baths, eat-in kitchen, and lots of parking. I’ll pay one-fourth of the rent — \$350 each month, including rent, electricity, water, sewer, and trash pick-up.

Then Janna explained that she would earn \$325 per month as a part-time lab assistant in the chemistry lab, and her parents could give her \$400 each month. That’s the amount they paid for room and board at the university. She has a scholarship for her tuition and books. She pointed out that would leave plenty of money for other expenses.

Janna’s parents agreed that everything she said was quite true, except for one thing. They didn’t agree that she would have “plenty of money” left over for other expenses. They asked Janna to prepare a budget using the spreadsheet program on the computer. They said that she needed to think about every little aspect of her school life. She had included rent, which is a **fixed expense** — an expense that is the same every month. She hadn’t included any **variable expenses** — expenses that may vary each month, such as groceries to replace the dorm meals and personal items. Janna went to the computer and prepared the following budget for her school year.

|    | A                             | B      | C   | D   | E   | F   | G   | H   | I   | J   |
|----|-------------------------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|
| 1  | ITEM                          | SEP    | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY |
| 2  | INCOME ITEMS                  |        |     |     |     |     |     |     |     |     |
| 3  | Allowance                     | 400.00 |     |     |     |     |     |     |     |     |
| 4  | Part-time work                | 325.00 |     |     |     |     |     |     |     |     |
| 5  | <b>INCOME</b>                 |        |     |     |     |     |     |     |     |     |
| 6  |                               |        |     |     |     |     |     |     |     |     |
| 7  | FIXED EXPENSE ITEMS           |        |     |     |     |     |     |     |     |     |
| 8  | Rent                          | 350.00 |     |     |     |     |     |     |     |     |
| 9  | <b>FIXED EXPENSES</b>         |        |     |     |     |     |     |     |     |     |
| 10 |                               |        |     |     |     |     |     |     |     |     |
| 11 | <i>VARIABLE EXPENSE ITEMS</i> |        |     |     |     |     |     |     |     |     |
| 12 | Groceries/personal items      | 216.50 |     |     |     |     |     |     |     |     |
| 13 | <b>VARIABLE EXPENSES</b>      |        |     |     |     |     |     |     |     |     |
| 14 |                               |        |     |     |     |     |     |     |     |     |
| 15 | <b>TOTAL EXPENSES</b>         |        |     |     |     |     |     |     |     |     |
| 16 |                               |        |     |     |     |     |     |     |     |     |
| 17 | <b>SURPLUS</b>                |        |     |     |     |     |     |     |     |     |

**What Is a Spreadsheet?**

A spreadsheet organizes information into a table of horizontal rows and vertical columns. Each row has a number assigned to it, and each column has a letter assigned to it. Each box in the table is a **cell** in which data (information) are placed. The data may be numbers or letters. A cell is the intersection of a row and column and has an “address” identifying its coordinates. The column heading at the top shows the column letters, and the row heading at the left shows the numbers. For example, “allowance” is located in cell A3 and “216.50” is located in cell B12. You can change cells by using the arrow keys or by clicking on a cell using the mouse.

**Creating Janna’s Budget Spreadsheet**

A **budget** is a plan of future income and expenses. It helps people anticipate future problems and create ways to correct for them. Create Janna’s budget spreadsheet.

**Step 1**

Click in the A1 cell using the mouse or go to A1 using arrow keys. Cell A1 looks different than the others with a dark border. When you are using a specific cell, it is called the **active cell**. Type “**ITEM**” in A1. Hit Enter .

Make A1 the active cell and widen column A, so all information in the column fits. Click Format, click Column, click Width, type “30” and click OK. You may also put the cursor on the line between A and B in the column heading. You’ll see an arrow indicator. Click and drag until the width is 30.

Click on B in the column heading, hold the Shift key down, and use the right arrow to highlight columns B through J. Using the mouse, click on Format, click on Cells, and click on Number under Category. Make sure that you have 2 decimal places. Click OK.

Enter all data. You can format the data in a cell using the toolbar by aligning the data in the center, right, or left, and by putting the data in boldface or italics. Look at Janna’s budget and format as you enter information in the cells.

**Step 2**

B5 should have Janna’s total income. The number is a sum of B3 and B4. Don’t do the addition in your head and enter it. Tell the program to add the numbers. Type =B3+B4 in cell B5, hit Enter, and the correct answer should appear.

There’s only one fixed expense, so enter that amount in B9. Do the same with variable expenses in B13. The sum of fixed and variable expenses is total expenses. In cell B15, type =B9+B13.

The difference between income and total expenses is called the surplus. In cell B17, type =B5-B15.

**Step 3**

Complete the spreadsheet by entering the remaining months. Because Janna has the same income and expenses each month, simply copy and paste the data into each month. Make B3 your active cell, hold down the shift button, and use the down arrow to highlight B3 through B17. Then copy the data. Go to C3 and paste the data. You may also go to C3, hold down the shift button, use the right arrow to highlight columns C through J, and then paste the data. This shows how a computer spreadsheet is so much easier than completing a handwritten, computed table!

Save your file.

Janna took her budget to her parents. They were impressed with her spreadsheet skills and said,

“Janna, you really did a great job setting up a budget on a spreadsheet! You must have learned a lot in your computer class at college.” Janna pointed out that she had a monthly surplus, and she asked if she could rent the apartment. Her parents replied that she still had many things to consider. “Janna, you must pay taxes on the income you receive — 15% federal income tax, 4% state tax, and about 8% for FICA.”

“What’s FICA?” replied Janna. “It’s for Social Security and Medicare,” her mom explained. Janna said, “I’m not going to retire for a long time. I don’t need to pay that now.” Mom pointed out that the law requires that Janna pay her share of Social Security and Medicare. Janna got out her calculator and said, “Well, taxes reduce my income by \$87.75, but my surplus is much more, so I’ll be okay. May I call my friends and tell them the good news?”

Dad said, “Not quite yet. I don’t think you’ve considered all your expenses. You will probably share a phone and the basic monthly service is \$40 that you can share with your friends. You also spend about \$25 a month on your long distance phone calls. In the university dorm, your room included access to the Internet and cable TV. In an apartment, you’d have to pay for those things. Internet access would cost about \$20 a month, and cable TV would cost about \$30 a month for basic service. You could divide those expenses among your friends.”

Janna exclaimed, “That’s not so bad. That’s only \$5 a month for Internet, \$10 a month for a phone, \$7.50 a month for cable TV when we share expenses. That’s the great thing about sharing an apartment. You can share expenses. Of course, I don’t think my friends will want to share my long distance bill from calling my sister at her university in Canada. Let’s see another \$25 and \$22.50 gone. That still leaves a surplus. We’re going to have such a great time in our. . . .”

“Just a minute, Janna,” Dad said. Last year, you spent about \$50 a month on gasoline, and you had a lot of school and entertainment expenses. According to your credit card statements, that was about \$100 a month for notebooks, clothes, movies, and so on. You spent about \$125 a month on eating out!”

“Wait a minute!” exclaimed Janna. “I work in the summer and save \$3000 for spending money during the school year. I forgot to include that in my income. Every month, I can withdraw one-ninth of my savings so that I have extra income every month. I’m not worried. This is all going to work out yet. Just wait and see. I’ll go back and revise my budget.”

**A New Budget**

Look at the following spreadsheet. You must enter some new categories (that is, rows). Now, Janna has another income source, some income deductions, and several new expenses.

|    | A                             | B      | C      | D      | E      | F      | G      | H      | I      | J      |
|----|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1  | ITEM                          | SEP    | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    |
| 2  | <i>INCOME ITEMS</i>           |        |        |        |        |        |        |        |        |        |
| 3  | Allowance                     | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 |
| 4  | Part-time work                | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 |
| 5  | Savings withdrawal            |        |        |        |        |        |        |        |        |        |
| 6  | INCOME                        |        |        |        |        |        |        |        |        |        |
| 7  |                               |        |        |        |        |        |        |        |        |        |
| 8  | <i>DEDUCTIONS</i>             |        |        |        |        |        |        |        |        |        |
| 9  | Federal income tax (15%)      |        |        |        |        |        |        |        |        |        |
| 10 | State income tax (4%)         |        |        |        |        |        |        |        |        |        |
| 11 | FICA (8%)                     |        |        |        |        |        |        |        |        |        |
| 12 | TOTAL DEDUCTIONS              |        |        |        |        |        |        |        |        |        |
| 13 |                               |        |        |        |        |        |        |        |        |        |
| 14 | NET INCOME                    |        |        |        |        |        |        |        |        |        |
| 15 |                               |        |        |        |        |        |        |        |        |        |
| 16 | <i>FIXED EXPENSE ITEMS</i>    |        |        |        |        |        |        |        |        |        |
| 17 | Rent                          | 350.00 |        |        |        |        |        |        |        |        |
| 18 | Basic phone service           |        |        |        |        |        |        |        |        |        |
| 19 | Cable television              |        |        |        |        |        |        |        |        |        |
| 20 | Internet access               |        |        |        |        |        |        |        |        |        |
| 21 | FIXED EXPENSES                |        |        |        |        |        |        |        |        |        |
| 22 |                               |        |        |        |        |        |        |        |        |        |
| 23 | <i>VARIABLE EXPENSE ITEMS</i> |        |        |        |        |        |        |        |        |        |
| 24 | Groceries/personal items      | 216.50 |        |        |        |        |        |        |        |        |
| 25 | Long distance phone calls     |        |        |        |        |        |        |        |        |        |
| 26 | Eating out                    |        |        |        |        |        |        |        |        |        |
| 27 | Gasoline                      |        |        |        |        |        |        |        |        |        |
| 28 | School/entertainment          |        |        |        |        |        |        |        |        |        |
| 29 | VARIABLE EXPENSES             |        |        |        |        |        |        |        |        |        |
| 30 |                               |        |        |        |        |        |        |        |        |        |
| 31 | TOTAL EXPENSES                |        |        |        |        |        |        |        |        |        |
| 32 |                               |        |        |        |        |        |        |        |        |        |
| 33 | SURPLUS                       |        |        |        |        |        |        |        |        |        |

NOTE: You now have more than one fixed and variable expense, so you must tell the computer to add the expenses. Go to B21 (which probably says 350.00). Type =B17+B18+B19+B20. Be sure to put a similar equation in B29 for variable expenses. Copy B21 to C21 through J21. Then use the same process for copying B29.

Janna rushed back to her parents after she worked hard on her budget spreadsheet. “Look!” she cried, “I did it! I still have a monthly surplus. Now, may I call Heather, Amy, and Lisa with the good news?”

The look on her father’s face told her that the call would not take place. Dad looked at the spreadsheet, and once again told Janna what a terrific job she had done. “Janna, I’m proud of your good work. However, there’s still something that you haven’t considered.”

“How could there possibly be anything else?” asked Janna. “This is a total picture of my financial life!”

“Not quite,” replied Janna’s father. “You forgot that you pay car insurance twice a year — \$600 each time. That was the deal we made last year when we agreed that you could take your car to college. You must pay your car insurance on the first of November and again on the first of May.”

“Okay, okay. I’ll put that in my spreadsheet. I’ll be right back.” Janna was gone for a while, then came running back to her parents. “Just look at this spreadsheet! I’ve got a terrible problem! What am I going to do?”

**Revise Janna’s budget one more time.**

- Periodic expenses occur occasionally, such as every six months or once a year.
- Go to cell A31, and insert four rows. Leave row 30 blank. Type PERIODIC EXPENSES (left alignment) in row 31. Type car insurance (left alignment) in row 32. Type PERIODIC EXPENSES IN ROW 33 (right alignment). Row 34 should be blank. See the following example.

|    | A                             | B      | C      | D      | E      | F      | G      | H      | I      | J      |
|----|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1  | ITEM                          | SEP    | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    |
| 29 | VARIABLE EXPENSES             | 516.50 | 516.50 | 516.50 | 516.50 | 516.50 | 516.50 | 516.50 | 516.50 | 516.50 |
| 30 |                               |        |        |        |        |        |        |        |        |        |
| 31 | <i>PERIODIC EXPENSE ITEMS</i> |        |        |        |        |        |        |        |        |        |
| 32 | car insurance                 |        |        |        |        |        |        |        |        |        |
| 33 | PERIODIC EXPENSES             |        |        |        |        |        |        |        |        |        |
| 34 |                               |        |        |        |        |        |        |        |        |        |
| 35 | <b>TOTAL EXPENSES</b>         |        |        |        |        |        |        |        |        |        |

- Enter car insurance payments in November and May. Enter a sum for periodic expenses in row 36.
- Go to B35 and revise the formula to include periodic expenses. Copy to the remaining cells in row 35. The surplus amounts in row 37 should change automatically.
- Save your file.

“What’s the matter?” asked Janna’s mother.

“Mom, I’ve got a terrible problem in November and May when I pay my car insurance. I don’t want to choose between an apartment and my car!” exclaimed Janna.

Janna’s mom told Janna to calm down. “Janna, she said. It’s not as bad as it appears. You have a surplus of -518.42. That’s a negative surplus or a deficit. Let’s think about a solution to your problem.”

Eventually Janna thought that she could save \$100 each month so that she could pay for the car insurance when it was due. Mom thought that she had a great idea and told Janna to revise her budget one more time.

Janna said, “Boy, I’m glad that I learned how to use a spreadsheet. I would have to keep doing the WHOLE budget over and over again if I were doing this with paper and pencil. Thank goodness for computers!”

After a while, Janna reappeared. “I can’t believe it! I’ve still got a problem! What’s next? Now I have a negative surplus every month!”

**Revise Janna’s spreadsheet one more time to see what she’s talking about.**

- Janna has \$1200 in car expenses. Insert a row above FIXED EXPENSES and under Internet access for “saving.” Janna should save every month for car insurance, based on 9 months.
- In November and May, Janna’s savings withdrawals will be \$600 more than usual so she can pay her car insurance.
- Janna’s deficit should be -51.75 every month.
- Save your file.

---

**Part II**

Just one more revision.

Make a decision for Janna so that she has a positive surplus once again. Janna really can’t earn any more money. She’s a full-time college student who already works as much as possible. As Janna said, “I guess that I’ll just have to cut some expenses.”

Enter your changes into the spreadsheet. Be prepared to explain and defend your changes to the class.

Read the following e-mail from Josh. Use the information to develop a spreadsheet budget for the school year. Determine if Josh has a budget surplus or deficit. Make sure to include a monthly payment for the money he owes you, his friend.

Write a response to Josh. In the message, explain what a budget spreadsheet is. Define budget deficit and budget surplus. Explain why Josh has one or the other. Also, define fixed, variable, and periodic expenses and make a list of Josh's fixed, variable, and periodic expenses. Suggest actions that Josh could take to bring his budget into balance.

---

Hi!

I thought I'd better write before my mother talks with yours. I had the money to repay what I borrowed from you. You know that I've been working all summer and saving for school clothes and the trip to Three Banners over the Desert Water Park at the end of May. I had plenty of money—enough to repay you and buy the other things. But that was before my life started to fall apart.

Luckily no one was hurt when the rock flew through Mrs. Smith's window. I could have earned more money to pay for the window if the blade on the lawn mower hadn't bent when it hit the rock. Oh, well, Mom says I won't have to pay to have the lawn mower repaired.

Anyway, I still have \$270 left. Sometime during the year, I want to buy two pairs of Frumpy and Fitch jeans. They're \$45 each. Admission to the water park along with food, video arcade, and shows will cost \$72. It's worth it though. Mom says I have to put at least 10 percent of the \$270 in my savings account. I'll never understand that. I put money in the account so I can buy stuff in the future. Who cares about that? I want stuff now. Mom also says that I have to provide my own spending money each month and money for gifts for holidays and birthdays. How am I supposed to know how much I'll need for things like that when they haven't even happened yet? I guess I'll need at least \$10 every month for fun things like movies and skating. I'll also need at least \$5 per month for food. How much do you think I'll need? How many months are there during the school year? You know what else? I promised to donate \$2 each month to a Save the Rainforest fund at school. I decided that I just wouldn't do that because I've had all of these problems. Mom says a promise is a promise and I have to make the donation. Gosh, how would anyone know if I didn't? Parents! I guess I'll just buy the stuff I want right now. Then, I'll use the rest for spending money until I run out. But what about saving and the trip in May and the Rainforest fund? I give up!

I know I still owe you \$25 and I'll repay you. Someday. Soon. I promise. You know you can trust me. I'm really reliable. It may take a while though. Hey, maybe I'll find a job shoveling snow in a few months.

Your friend,

Josh

Janna is very happy sharing an apartment with her three friends, and everything is working out fine. Janna developed a budget with a small surplus, and she's managed her money very well for two months. On October 31, Janna and her roommates had enough surplus to host a Halloween party.

While Janna was admiring Barbara and Claire's 60s costumes, Barbara exclaimed, "Have you heard about the trip to New Mexico for Habitat for Humanity?" It will happen during our spring break. I went last year, and it was such a wonderful experience. We repair and fix up homes for people who can't afford to do it themselves. There's a cost, but it's really worth it."

"How much?" asked Janna.

"Only \$800, but you must pay a \$200 deposit by the end of next week. Will you join us?" asked Claire.

"It sounds perfect. I worked with them last summer, and it was very rewarding. I'll work on my budget and let you know in a couple of days," replied Janna

Using your last spreadsheet, work out a budget that will allow Janna to go on the trip. Be prepared to discuss how you changed the budget and what Janna must give up.

|    | A                             | B      | C      | D      | E      | F      | G      | H      | I      | J      |
|----|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1  | ITEM                          | SEP    | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    |
| 2  | <i>INCOME ITEMS</i>           |        |        |        |        |        |        |        |        |        |
| 3  | Allowance                     | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 |
| 4  | Part-time work                | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 | 325.00 |
| 5  | <b>INCOME</b>                 | 725.00 | 725.00 | 725.00 | 725.00 | 725.00 | 725.00 | 725.00 | 725.00 | 725.00 |
| 6  |                               |        |        |        |        |        |        |        |        |        |
| 7  | <i>FIXED EXPENSE ITEMS</i>    |        |        |        |        |        |        |        |        |        |
| 8  | Rent                          | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 |
| 9  | FIXED EXPENSES                | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 | 350.00 |
| 10 |                               |        |        |        |        |        |        |        |        |        |
| 11 | <i>VARIABLE EXPENSE ITEMS</i> |        |        |        |        |        |        |        |        |        |
| 12 | Groceries/personal items      | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 |
| 13 | VARIABLE EXPENSES             | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 | 216.50 |
| 14 |                               |        |        |        |        |        |        |        |        |        |
| 15 |                               |        |        |        |        |        |        |        |        |        |
|    | <b>TOTAL EXPENSES</b>         | 566.50 | 566.50 | 566.50 | 566.50 | 566.50 | 566.50 | 566.50 | 566.50 | 566.50 |
| 16 |                               |        |        |        |        |        |        |        |        |        |
| 17 | <b>SURPLUS</b>                | 158.50 | 158.50 | 158.50 | 158.50 | 158.50 | 158.50 | 158.50 | 158.50 | 158.50 |

# Money Math: Lessons for Life

## Visual 4-2

|    | A                          | B       | C       | D       | E       | F       | G       | H       | I       | J       |
|----|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1  | ITEM                       | SEP     | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     |
| 2  | <i>INCOME ITEMS</i>        |         |         |         |         |         |         |         |         |         |
| 3  | Allowance                  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  |
| 4  | Part-time work             | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  |
| 5  | Savings withdrawal         | 333.33  | 333.33  | 333.33  | 333.33  | 333.33  | 333.33  | 333.33  | 333.33  | 333.33  |
| 6  | GROSS INCOME               | 1058.33 | 1058.33 | 1058.33 | 1058.33 | 1058.33 | 1058.33 | 1058.33 | 1058.33 | 1058.33 |
| 7  |                            |         |         |         |         |         |         |         |         |         |
| 8  | <i>DEDUCTIONS</i>          |         |         |         |         |         |         |         |         |         |
| 9  | Federal income tax (15%)   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   |
| 10 | State income tax (4%)      | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   |
| 11 | FICA (8%)                  | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   |
| 12 | TOTAL DEDUCTIONS           | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   |
| 13 |                            |         |         |         |         |         |         |         |         |         |
| 14 | NET INCOME                 | 970.58  | 970.58  | 970.58  | 970.58  | 970.58  | 970.58  | 970.58  | 970.58  | 970.58  |
| 15 |                            |         |         |         |         |         |         |         |         |         |
| 16 | <i>FIXED EXPENSE ITEMS</i> |         |         |         |         |         |         |         |         |         |
| 17 | Rent                       | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  |
| 18 | Basic phone service        | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   |
| 19 | Cable television           | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    |
| 20 | Internet access            | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    |
| 21 | FIXED EXPENSES             | 372.50  | 372.50  | 372.50  | 372.50  | 372.50  | 372.50  | 372.50  | 372.50  | 372.50  |
| 22 |                            |         |         |         |         |         |         |         |         |         |
| 23 | <i>VARIABLE EXP. ITEMS</i> |         |         |         |         |         |         |         |         |         |
| 24 | Groceries/personal items   | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  |
| 25 | Long distance phone calls  | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   |
| 26 | Eating out                 | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  |
| 27 | Gasoline                   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   |
| 28 | School/entertainment       | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  |
| 29 | VARIABLE EXPENSES          | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  |
| 30 |                            |         |         |         |         |         |         |         |         |         |
| 31 |                            |         |         |         |         |         |         |         |         |         |
|    | TOTAL EXPENSES             | 889.00  | 889.00  | 889.00  | 889.00  | 889.00  | 889.00  | 889.00  | 889.00  | 889.00  |
| 32 |                            |         |         |         |         |         |         |         |         |         |
| 33 | SURPLUS                    | 81.58   | 81.58   | 81.58   | 81.58   | 81.58   | 81.58   | 81.58   | 81.58   | 81.58   |

|    | A                             | B              | C              | D               | E              | F              | G              | H              | I              | J               |
|----|-------------------------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| 1  | ITEM                          | SEP            | OCT            | NOV             | DEC            | JAN            | FEB            | MAR            | APR            | MAY             |
| 2  | <i>INCOME ITEMS</i>           |                |                |                 |                |                |                |                |                |                 |
| 3  | Allowance                     | 400.00         | 400.00         | 400.00          | 400.00         | 400.00         | 400.00         | 400.00         | 400.00         | 400.00          |
| 4  | Part-time work                | 325.00         | 325.00         | 325.00          | 325.00         | 325.00         | 325.00         | 325.00         | 325.00         | 325.00          |
| 5  | Savings withdrawal            | 333.33         | 333.33         | 333.33          | 333.33         | 333.33         | 333.33         | 333.33         | 333.33         | 333.33          |
| 6  | <b>GROSS INCOME</b>           | <b>1058.33</b> | <b>1058.33</b> | <b>1058.33</b>  | <b>1058.33</b> | <b>1058.33</b> | <b>1058.33</b> | <b>1058.33</b> | <b>1058.33</b> | <b>1058.33</b>  |
| 7  |                               |                |                |                 |                |                |                |                |                |                 |
| 8  | <i>DEDUCTIONS</i>             |                |                |                 |                |                |                |                |                |                 |
| 9  | Federal income tax (15%)      | 48.75          | 48.75          | 48.75           | 48.75          | 48.75          | 48.75          | 48.75          | 48.75          | 48.75           |
| 10 | State income tax (4%)         | 13.00          | 13.00          | 13.00           | 13.00          | 13.00          | 13.00          | 13.00          | 13.00          | 13.00           |
| 11 | Social security/Medicare (8%) | 26.00          | 26.00          | 26.00           | 26.00          | 26.00          | 26.00          | 26.00          | 26.00          | 26.00           |
| 12 | <b>TOTAL DEDUCTIONS</b>       | <b>87.75</b>   | <b>87.75</b>   | <b>87.75</b>    | <b>87.75</b>   | <b>87.75</b>   | <b>87.75</b>   | <b>87.75</b>   | <b>87.75</b>   | <b>87.75</b>    |
| 13 |                               |                |                |                 |                |                |                |                |                |                 |
| 14 | <b>NET INCOME</b>             | <b>970.58</b>  | <b>970.58</b>  | <b>970.58</b>   | <b>970.58</b>  | <b>970.58</b>  | <b>970.58</b>  | <b>970.58</b>  | <b>970.58</b>  | <b>970.58</b>   |
| 15 |                               |                |                |                 |                |                |                |                |                |                 |
| 16 | <i>FIXED EXPENSE ITEMS</i>    |                |                |                 |                |                |                |                |                |                 |
| 17 | Rent                          | 350.00         | 350.00         | 350.00          | 350.00         | 350.00         | 350.00         | 350.00         | 350.00         | 350.00          |
| 18 | Basic phone service           | 10.00          | 10.00          | 10.00           | 10.00          | 10.00          | 10.00          | 10.00          | 10.00          | 10.00           |
| 19 | Cable television              | 7.50           | 7.50           | 7.50            | 7.50           | 7.50           | 7.50           | 7.50           | 7.50           | 7.50            |
| 20 | Internet access               | 5.00           | 5.00           | 5.00            | 5.00           | 5.00           | 5.00           | 5.00           | 5.00           | 5.00            |
| 21 | <b>FIXED EXPENSES</b>         | <b>372.50</b>  | <b>372.50</b>  | <b>372.50</b>   | <b>372.50</b>  | <b>372.50</b>  | <b>372.50</b>  | <b>372.50</b>  | <b>372.50</b>  | <b>372.50</b>   |
| 22 |                               |                |                |                 |                |                |                |                |                |                 |
| 23 | <i>VARIABLE EXPENSE ITEMS</i> |                |                |                 |                |                |                |                |                |                 |
| 24 | Groceries/personal items      | 216.50         | 216.50         | 216.50          | 216.50         | 216.50         | 216.50         | 216.50         | 216.50         | 216.50          |
| 25 | Long distance phone calls     | 25.00          | 25.00          | 25.00           | 25.00          | 25.00          | 25.00          | 25.00          | 25.00          | 25.00           |
| 26 | Eating out                    | 125.00         | 125.00         | 125.00          | 125.00         | 125.00         | 125.00         | 125.00         | 125.00         | 125.00          |
| 27 | Gasoline                      | 50.00          | 50.00          | 50.00           | 50.00          | 50.00          | 50.00          | 50.00          | 50.00          | 50.00           |
| 28 | School/entertainment          | 100.00         | 100.00         | 100.00          | 100.00         | 100.00         | 100.00         | 100.00         | 100.00         | 100.00          |
| 29 | <b>VARIABLE EXPENSES</b>      | <b>516.50</b>  | <b>516.50</b>  | <b>516.50</b>   | <b>516.50</b>  | <b>516.50</b>  | <b>516.50</b>  | <b>516.50</b>  | <b>516.50</b>  | <b>516.50</b>   |
| 30 |                               |                |                |                 |                |                |                |                |                |                 |
| 31 | <i>PERIODIC EXPENSE ITEMS</i> |                |                |                 |                |                |                |                |                |                 |
| 32 | Car insurance                 |                |                | 600.00          |                |                |                |                |                | 600.00          |
| 33 | <b>PERIODIC EXPENSES</b>      |                |                | <b>600.00</b>   |                |                |                |                |                | <b>600.00</b>   |
| 34 |                               |                |                |                 |                |                |                |                |                |                 |
| 35 | <b>TOTAL EXPENSES</b>         | <b>889.00</b>  | <b>889.00</b>  | <b>1,489.00</b> | <b>889.00</b>  | <b>889.00</b>  | <b>889.00</b>  | <b>889.00</b>  | <b>889.00</b>  | <b>1,489.00</b> |
| 36 |                               |                |                |                 |                |                |                |                |                |                 |
| 37 | <b>SURPLUS</b>                | <b>81.58</b>   | <b>81.58</b>   | <b>-518.42</b>  | <b>81.58</b>   | <b>81.58</b>   | <b>81.58</b>   | <b>81.58</b>   | <b>81.58</b>   | <b>-518.42</b>  |

|    | A                             | B       | C       | D       | E       | F       | G       | H       | I       | J       |
|----|-------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1  | ITEM                          | SEP     | OCT     | NOV     | DEC     | JAN     | FEB     | MAR     | APR     | MAY     |
| 2  | <i>INCOME ITEMS</i>           |         |         |         |         |         |         |         |         |         |
| 3  | Allowance                     | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  | 400.00  |
| 4  | Part-time work                | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  | 325.00  |
| 5  | Savings withdrawal            | 333.33  | 333.33  | 933.33  | 333.33  | 333.33  | 333.33  | 333.33  | 333.33  | 933.33  |
| 6  | <b>GROSS INCOME</b>           | 1058.33 | 1058.33 | 1658.33 | 1058.33 | 1058.33 | 1058.33 | 1058.33 | 1058.33 | 1658.33 |
| 7  |                               |         |         |         |         |         |         |         |         |         |
| 8  | <i>DEDUCTIONS</i>             |         |         |         |         |         |         |         |         |         |
| 9  | Federal income tax (15%)      | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   | 48.75   |
| 10 | State income tax (4%)         | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   | 13.00   |
| 11 | Social security/Medicare (8%) | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   | 26.00   |
| 12 | <b>TOTAL DEDUCTIONS</b>       | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   | 87.75   |
| 13 |                               |         |         |         |         |         |         |         |         |         |
| 14 | <b>NET INCOME</b>             | 970.58  | 970.58  | 1570.58 | 970.58  | 970.58  | 970.58  | 970.58  | 970.58  | 1570.58 |
| 15 |                               |         |         |         |         |         |         |         |         |         |
| 16 | <i>FIXED EXPENSE ITEMS</i>    |         |         |         |         |         |         |         |         |         |
| 17 | Rent                          | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  | 350.00  |
| 18 | Basic phone service           | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   | 10.00   |
| 19 | Cable television              | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    | 7.50    |
| 20 | Internet access               | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    | 5.00    |
| 21 | Saving                        | 133.33  | 133.33  | 133.33  | 133.33  | 133.33  | 133.33  | 133.33  | 133.33  | 133.33  |
| 22 | <b>FIXED EXPENSES</b>         | 505.83  | 505.83  | 505.83  | 505.83  | 505.83  | 505.83  | 505.83  | 505.83  | 505.83  |
| 23 |                               |         |         |         |         |         |         |         |         |         |
| 24 | <i>VARIABLE EXPENSE ITEMS</i> |         |         |         |         |         |         |         |         |         |
| 25 | Groceries/personal items      | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  | 216.50  |
| 26 | Long distance phone calls     | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   | 25.00   |
| 27 | Eating out                    | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  | 125.00  |
| 28 | Gasoline                      | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   | 50.00   |
| 29 | School/entertainment          | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  | 100.00  |
| 30 | <b>VARIABLE EXPENSES</b>      | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  | 516.50  |
| 31 |                               |         |         |         |         |         |         |         |         |         |
| 32 | <i>PERIODIC EXPENSE ITEMS</i> |         |         |         |         |         |         |         |         |         |
| 33 | Car insurance                 |         |         | 600.00  |         |         |         |         |         | 600.00  |
| 34 | <b>PERIODIC EXPENSES</b>      |         |         | 600.00  |         |         |         |         |         | 600.00  |
| 35 |                               |         |         |         |         |         |         |         |         |         |
| 36 | <b>TOTAL EXPENSES</b>         | 1022.33 | 1022.33 | 1622.33 | 1022.33 | 1022.33 | 1022.33 | 1022.33 | 1022.33 | 1622.33 |
| 37 |                               |         |         |         |         |         |         |         |         |         |
| 38 | <b>SURPLUS</b>                | -51.75  | -51.75  | -51.75  | -51.75  | -51.75  | -51.75  | -51.75  | -51.75  | -51.75  |

| ITEM                          | SEP    | OCT    | NOV    | DEC    | JAN    | FEB    | MAR    | APR    | MAY    |
|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <i>INCOME ITEMS</i>           |        |        |        |        |        |        |        |        |        |
| Part-time work                | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  |
| <b>INCOME</b>                 | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  | 30.00  |
| <i>FIXED EXPENSE ITEMS</i>    |        |        |        |        |        |        |        |        |        |
| Save the Rainforest Fund      | 2.00   | 2.00   | 2.00   | 2.00   | 2.00   | 2.00   | 2.00   | 2.00   | 2.00   |
| Loan Repayment                | 2.78   | 2.78   | 2.78   | 2.78   | 2.78   | 2.78   | 2.78   | 2.78   | 2.78   |
| FIXED EXPENSES                | 4.78   | 4.78   | 4.78   | 4.78   | 4.78   | 4.78   | 4.78   | 4.78   | 4.78   |
| <i>VARIABLE EXPENSE ITEMS</i> |        |        |        |        |        |        |        |        |        |
| Entertainment                 | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |
| Food/snacks                   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   |
| Clothing                      | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |
| VARIABLE EXPENSES             | 25.00  | 25.00  | 25.00  | 25.00  | 25.00  | 25.00  | 25.00  | 25.00  | 25.00  |
| SAVING                        | 3.00   | 3.00   | 3.00   | 3.00   | 3.00   | 3.00   | 3.00   | 3.00   | 3.00   |
| <i>PERIODIC EXPENSE ITEMS</i> |        |        |        |        |        |        |        |        |        |
| Gifts                         | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   | 5.00   |
| Water park                    | 8.00   | 8.00   | 8.00   | 8.00   | 8.00   | 8.00   | 8.00   | 8.00   | 8.00   |
| PERIODIC EXPENSES             | 13.00  | 13.00  | 13.00  | 13.00  | 13.00  | 13.00  | 13.00  | 13.00  | 13.00  |
| <b>TOTAL EXPENSES</b>         | 45.78  | 45.78  | 45.78  | 45.78  | 45.78  | 45.78  | 45.78  | 45.78  | 45.78  |
| <b>SURPLUS</b>                | -15.78 | -15.78 | -15.78 | -15.78 | -15.78 | -15.78 | -15.78 | -15.78 | -15.78 |

Josh, I think that I can help you. I've prepared a budget spreadsheet for you. That's a list of your monthly income and expenses. It will help you see how much money you have for each month and what your expected expenses are. Right now you have a problem because you have a budget deficit. That means that you are planning to spend more each month than the money you have available. Sometimes people have budget surpluses. That means that they have more money available each month than what they expect to spend. Too bad that's not your problem.

If you look at the spreadsheet, you'll see that I have several categories of expenses. Fixed expenses don't vary from month to month. For you, the donation to the rainforest fund is a fixed expense. Since you're my good friend, I've decided you can pay part of the \$25 you owe me each month. Then it won't be so hard. That payment is also a fixed expense. You also have some variable expenses. These expenses can change from month to month. For example, one month you might spend more for food or clothing than in another month.

You also have some periodic expenses. These occur once in a while. The trip to the water park and gifts for holidays are periodic expenses. I also included the saving your mother recommended. It's only \$3 per month. That's not so bad. If you look at the entire spreadsheet, you'll notice that you only have \$30 to spend each month. There are 9 months in the school year so I divided \$270 by 9. However, you expect to spend \$45.78 each month. You can't do that. You don't have enough money.

I have some suggestions that might help you balance your budget. That means your expenses equal the amount of money you have to spend. To do that, you have to reduce what you spend and/or increase your income. You can reduce the amount you want each month for clothes. Your old jeans still fit, so you can get by with one pair of Frumpy and Fitch jeans. You'll only need \$5 each month for clothes. Also, you can make gifts instead of buying gifts. You'll only need \$2 each month for gifts. You could also reduce the amount you spend at the water park if you bring some snacks from home and play fewer video games. You'll only need \$7 each month.

Finally, I think you better plan on shoveling snow and babysitting each month. Maybe you could be a soccer referee for the little kids' soccer program at the community center, too. That will give you some additional income. I bet you can earn about \$15 a month. You could also ask your grandparents for money for your birthday. That would help. You might end up with extra spending money for the trip!











University of Missouri-St. Louis  
Center for Entrepreneurship & Economic Education

ISBN 978-0-9709279-1-0

2007202-9/07