# Budgeting and Spending Money

**SUBMITTED BY:** Nina Hoe, University of Pennsylvania

**SUBJECT(S):** Computation

**GRADE LEVEL(S):** 9, 10, 11, 12

## OVERVIEW:

In this lesson, students discuss saving money, spending money and budgeting. In small groups or pairs, they work through answering questions about spending patterns and use graphical representations to model and better understand spending. Students examine a sample family budget plan, calculating total annual expenditures including savings, and then calculate their own monthly expenses.

## RELATED ARTICLES:

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- "Olivia Mitchell on Why Young Consumers Should Just Say No to Spending"
- "Mobile Payments: A Cautionary Tale"
- "How an Investment-minded Student Started Financial Literacy for You"
- "Educator Toolkit: Spending and Budgeting"
- "Conquering the Negative Bank Balance"
- "Budgeting Tips to Help You Take Control of Your Money"
- "Budgeting Basics: Spending Less than You Earn"
- "A Teen from the United Arab Emirates Considers a New Era of Taxation"

**Objectives/Purpose:** Students will calculate spending totals. They will be able to write equations that model a regular spending. They will work with a sample budget and create their own monthly budget to better understand spending.

**Standards:**

- *WGYP:*
- Mathematical Foundations
- Number Relationships
- Patterns, Functions, and Algebra
- Problem Solving

*Common Core:*

A-SSE.1. Interpret expressions that represent a quantity in terms of its context

A-CED.1. Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

A-CED.2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

F-IF.1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).

F-IF.2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

**Other Resources/Materials:**

Calculators

**Activity:**

Student Worksheet

Class Discussion: Earning money, saving money, spending money and budgeting are all related to one another.

1. Ask students to make a list of things that they spend money on.

2. What factors contribute to what you spend money on? ***(How much money you have to spend, what you need to buy to survive, what you like to have, etc.)***
3. What does it mean to budget or to have a budget? ***(A budget it s a financial plan to allocate certain resources to certain things.)***

Have students work in small groups to answer the following questions.

Activity:

1. If you spend $22.50 each week on your public transportation pass, how much do you spend per month? Per year? ***(approx $90+ per month, $1,170 per year)***

2. If you were given a birthday gift of $100. You decide to spend this money on going to the movies, which costs $6 each time.

1. At this price, how many times could you go to the movies? ***(16 times with a bit left over)***
2. Write an equation that gives you the amount of money that you have remaining as a function of how many times you have gone to the movies. {What is your intercept/starting point?} ***(y = –6x + 100)***
3. Graph this line in the space below.

[Before you graph, make sure to identify:

Variable quantity: ***(amount of money left over)***

Lower Bounds: ***(0 times gone to movies, $0)***

Upper Bounds: ***(17 times gone to movies, $100)***

Intervals: ***(1 time, $6)*** ]

4. Use the line to estimate how much money you will have left after you have gone to the movies 8 times. ***(Answers will vary.)***
5. Compute how much money you will have left after you have gone to the movies 8 times using the equation and compare your answers. ***(y = –6(8) + 100 = –48 + 100 = $52)***

3. On average, you fill up your 15-gallon gas tank 6 times a month. Throughout the year, gas prices fluctuate.

1. Based on the average monthly prices for gas, calculate how much you spend per month and per year on gas. ***(Students should multiply the price per gallon of gas times the number of gallons (15) times the number of times filled up per month (6). Essentially, each price per gallon is multiplied by 90. Encourage students to divide these calculations up.)***

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price of Gas ($/ gallon) | 3.61 | 3.84 | 3.72 | 3.54 | 3.64 | 3.54 | 3.29 | 3.26 | 3.16 | 2.97 | 3.01 | 3.21 | avg |
| ***Amount Spent*** | ***324.9*** | ***345.6*** | ***334.8*** | ***318.6*** | ***327.6*** | ***318.6*** | ***296.1*** | ***293.4*** | ***284.4*** | ***267.3*** | ***270.9*** | ***288.9*** | ***305.925*** |

2. In the space below, graph your spending in gas per month. Use a bar graph or a line graph with months on the x-axis and amount spent on the y-axis.A family has the following budget plan, which includes things for which they are saving and spending. ***(Note: All costs that are weekly should be multiplied by 52, monthly should be multiplied by 12 and yearly costs can just be transferred over.)***

| **Item** | **Cost** | **Frequency** | **Yearly cost** |
|---|---|---|---|
| **Food, electricity and gas bills** | **$600** | **monthly** | **$7,200** |
| **rent or mortgage payment** | **$1,200** | **monthly** | **$14,400** |
| **gas (auto) or public transportation** | **$40** | **weekly** | **$2,080** |
| **medical insurance** | **$3,500** | **yearly** | **$3,500** |
| **movies** | **$30** | **monthly** | **$360** |
| **telephone and Internet service** | **$80** | **monthly** | **$960** |
| **credit card debt** | | | |
| **water/trash service** | **$15** | **monthly** | **$180** |

| | | | |
|---|---|---|---|
| **child care** | **$150** | **weekly** | **$7,800** |
| **auto insurance** | **$942** | **yearly** | **$942** |
| **car payment** | **$300** | **monthly** | **$3,600** |
| **retirement plan (IRA)** | **$400** | **monthly** | **$4,800** |
| **clothing** | **$500** | **yearly** | **$500** |
| **life insurance** | **$200** | **yearly** | **$200** |
| **cable service** | **$30** | **monthly** | **$360** |
| **savings** | | | |
| **TOTAL** | | | **$18,382.00** |

1. Calculate the total yearly spending of this family. ***($18,362)***
2. If the family wanted to save $5,000 each year for emergencies (this is in addition to their retirement), how much would that increase their overall budget? ***($18,362 + $5,000 = $23,362)***
3. Why is it important to budget for savings as well? ***(In case of emergencies.)***
4. How much income would this family need each year to make this budget work? ***($23,362 x 12 months = $280,344)***

4. If you are dependent upon a paycheck or an allowance for your spending money, why is it important to come up with a spending plan? ***(So you know how much you can afford to spend on things on a regular basis. It's important to map this all out as some expenses are weekly, monthly, and yearly.)***

5. Take the list you brainstormed in the discussion and record the costs and frequency of all of things on which you spend money. (Include things such as cell phone bill, car insurance, car payment, movie tickets, food, transportation, etc.) ***(Answers will vary.)***

| Item/Service on which you spend money | Amount needed/spent | Frequency |
|---|---|---|
| *Ex: Cell Phone Bill* | *$16* | *Once per month* |

1. Based on this list, calculate how much money you spend in a 1 MONTH period. If you have daily expenses, multiply by 30 and if you have weekly expenses multiply by 4.3.

2. How does this amount of money compare to the amount of money that you have to spend each month?
3. Do you have any money left over to save?

**Tying It All Together:**

1. Have students discuss their own spending plans/monthly budgets.
2. Discuss: Why is it important to have a spending plan?

**What Worked and What I Would Do Differently:**