

Lesson Plan

Text:

Volume: Financial Algebra **Chapter:** 10 “Preparing a Budget”

Unit number: 10-3 **Title of unit:** Charting a Budget

Developed by: Patrick Campbell

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Short Description (Be sure to include where in your unit this lesson takes place):

Visualizing where your budget is going using graphic displays. i.e., graphs and charts. This will be placed in the middle of the unit “Preparing a Budget” after a lesson on matrix construction and use.

LESSON PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lesson Objectives (Students will be able to:) Create, visualize and interpret a budget using a pie chart, a bar graph, and a budget line graph.**
- **List of prerequisite skills needed:**
 1. **Understanding of what a budget includes and why have a budget.**
 2. **Basic knowledge of Excel Spreadsheets**
 3. **Understanding of rows and columns with data**
 4. **Understanding of the terms monthly; semi-monthly; quarterly and biannually**
- **Vocabulary:**
 1. **Pie chart**
 2. **Bar graph**
 3. **Budget line graph**
 4. **Central angle**
 5. **Sectors (regions)**
 6. **Electronic matrix**
- **State Standards addressed:**
- **Math:**

Represent and solve problems represented by equations and inequalities- Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

Interpret the structure of expressions

Build a function with a symbolic expression, as a graph, in a table, and using words, and make connections among these representations
Read and interpret diagrams, graphs, and text containing the symbols, language, and conventions of mathematics.

- **Reading:**

Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

- **Leadership:**

The student will analyze, refine, and apply decision-making skills through classroom, family, community, and business and industry experiences.

The student will demonstrate social responsibility in family, community, and business and industry.

- **Teacher Preparation:**

Computers

Excel software (or other suitable spreadsheet program)

Have examples of the three types of charts being discussed.

- **Content Delivery:**

The teacher will reintroduce the previous lesson on Matrices and how they visually demonstrate organized data.

Then the teacher will have students discuss other means of visually representing numbers and data.

The teacher will show the class the You Tube video (#2 below) for review of charts and graphs (scatter plot)

Walk the students through the information found on page 499 for Jeff's budget expenses.

Have them place the data into a spreadsheet and create a pie chart including data labels with percentages for each category

Discuss how his percentages affected the construction of the chart include the central angle and sectors in the discussion.

- **Instructional Documents**

You Tube video (#2 below) for review of charts and graphs (scatter plot)

Financial Algebra textbook

- **Assessment Tool used in this Lesson**

Construct a pie chart in a spreadsheet that shows the following information: Groceries \$240; Gasoline and Car Maintenance \$200; Rent \$800; Utilities \$150; Entertainment \$100.00; and a tip for your teacher \$75.

Answer the questions below based on the result of your chart.

- 1. Calculate and list the measure of Central Angle for each category.**
- 2. If these numbers were your budget numbers, what would you put into your savings account each month if you made \$1500 each month**
- 3. Construct a line graph using this same data.**

- **Reinforcement/Intervention/Extension Activities**

See below

- **Career Applications**

This can be used in the student's daily life for budgeting purposes. It can also be used in a variety of businesses and in a variety of departments within a business when asked to produce a budget and share with your supervisor or other departments.

Website Resources:

Common Core English Standards

http://www.k12.wa.us/CoreStandards/ELAstandards/pubdocs/CCSSI_ELA_Standards.pdf#3

Creating a Graph from a spreadsheet You Tube video

<http://www.practicalmoneyskills.com/games/trainingcamp/ff/>
<http://www.google.com/url?sa=t&rct=j&q=budget%20graph%20creation%20you%20tube&source=web&cd=1&ved=0CFkQFjAA&url=http%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3D8B8kFVNzIQ8&ei=YCnqT8TbLKiz6gH1g7mZAO&usg=AFQjCNGT W4LueykjDIbvb0SZuXHWMydMpQ>

Financial Football Budgeting Game

<http://www.practicalmoneyskills.com/games/trainingcamp/ff/>

Washington

Reinforcement

The following is a summary of your cell phone bill for this month.

| | |
|------------------|------|
| Insurance | \$3 |
| Apps Purchases | \$10 |
| Downloaded Music | \$10 |
| Data Usage | \$85 |
| Unlimited Text | \$11 |

- Suppose that \$115 was budgeted for the month for your cell phone. Determine the percentage for each category using a pie chart.
- Determine the central angle for each category.
- Create a bar chart for this same data.
- Print both charts with your name and period in a footer.

Extension

Diego likes eating hot dogs. He likes it so much he even budgets money for hot dogs. He decides to budget \$100 per month to spend on hot dogs he can buy at two different locations. At Pups R Us the hot dog he likes costs \$2. A hot dog from Mustard's Last Stand costs him \$4. He tries to balance both throughout the month. Construct a budget line that shows the different combinations with the two types of hot dogs, which allows him to stay within budget. Suppose then that Diego increases his budget by 10%. Graph the new budget line after identifying the new points.

C = cost X = item 1 Y = item 2

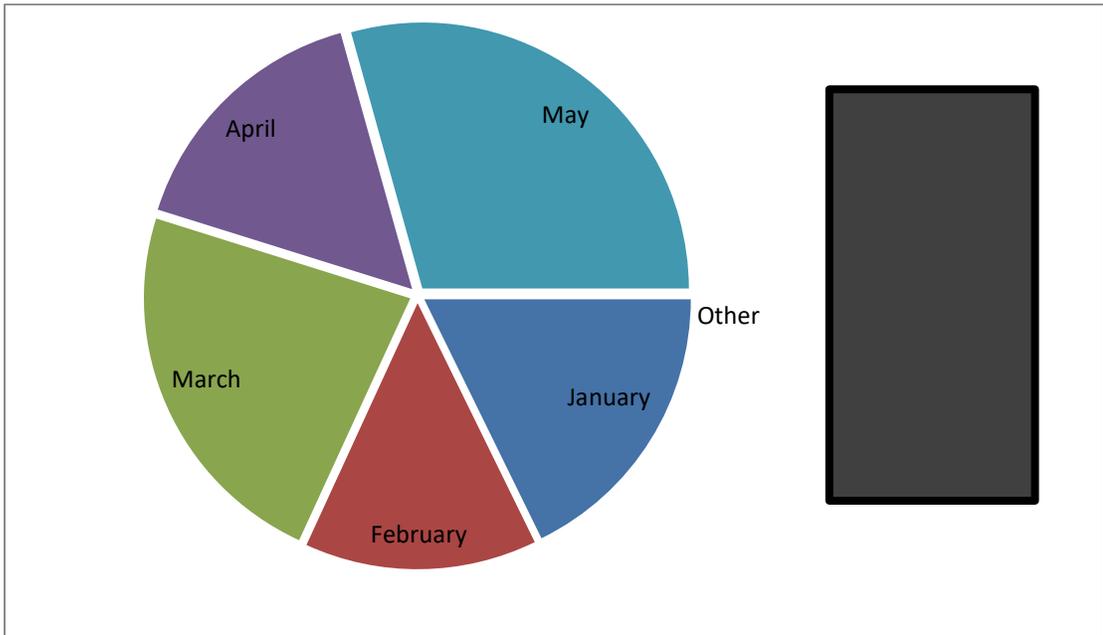
Budget line equation: $C_xX + C_yY = B$ Where B is the budgeted amount

<https://wa-appliedmath.org/>

Quiz Unit 10-3 Charting a Budget

Washington Applied

1. A pie chart is a graphic display that depicts:
 - a. A square divided into sectors
 - b. A circle used to present arcs and tangents
 - c. A circle used to present percentages
 - d. None of the above
2. A pie chart divides the area of a circle into sections called:
 - a. Regions
 - b. Radii
 - c. Matrix
 - d. Sectors
3. Using the following pie chart estimate the central angle percentage of Cat Food



- a. 90
 - b. 50
 - c. 25
 - d. 10
4. Dilbert pays his cell phone bill twice a month. He pays
 - a. Semiannually
 - b. Bimonthly
 - c. Annually
 - d. Monthly

5. Using the following information construct a column chart on graph paper of work expenses (lunch, transportation, office gifts, etc.) for Jason for the first five months of the year. Add labels and title as appropriate.

January \$112

February \$89

March \$145

April \$100

May \$185

Washington Applied Math Council

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Answers:

Washington

1. c A circle used to present percentages
2. d Sectors
3. a 90
4. b bimonthly
5. see below

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