

## **WAMC Lab Template**

Math Concept(s): Personal Budgeting

Source / Text: Financial Algebra

Developed by: Genie Storvick, Carolyn Sturges

E-Mail: [geniestorvic@fwps.org](mailto:geniestorvic@fwps.org),  
[Carolyn.sturges@rsd.edu](mailto:Carolyn.sturges@rsd.edu),

Date: Summer In-service 2013

### **Attach the following documents:**

Lab Instructions

Student Handout(s)

Rubric and/or Assessment Tool

### **Short Description (Be sure to include where in your instruction this lab takes place):**

This lab is an introduction to the concept of personal budgeting. It is also a quick assessment to see where students are in terms of understanding percentages, fractions, budgeting and accounting. It is a chance to model a real life scenario that applies to everyone, and build background knowledge about personal finance.

### **Lab Plan**

Lab Title: Balanced Budget = Balanced Life

Prerequisite skills: Fractions and Percentages

Lab objective:

- To review concepts of Percentage and Fractions, and then to embed those concepts into personal real life scenarios.
- To learn what items are commonly deducted from a paycheck, and how to calculate them.
- To set the stage for the Financial Algebra unit on personal budget.

### **Standards:**

CCSS-M:

- Reason quantitatively N-Q, Reviewing 7-EE, Solve Real-life and mathematical problems using numerical and algebraic expressions and equations.

Standards for Mathematical Practice:

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 4. Model with mathematics.

State Standards addressed (2008 Washington State Mathematics Standards):

. A1.8.A Analyze a problem situation and represent it mathematically.

- . A1.8.B Select and apply strategies to solve problems.
- . A1.8.C Evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem.
- . A1.8.D Generalize a solution strategy for a single problem to a class of related problems, and apply a strategy for a class of related problems to solve specific problems.
- . A1.8.E Read and interpret diagrams, graphs, and text containing the symbols, language, and conventions of mathematics.
- . A1.8.F Summarize mathematical ideas with precision and efficiency for a given audience and purpose.
- . A1.8.G Synthesize information to draw conclusions, and evaluate the arguments and conclusions of others.

**Reading:**

- GLE 1.3.2 Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.

**Writing:**

- 2.21 Writing for Solving Problems

**Leadership/21st Century Skills:**

<p><u>21st Century Interdisciplinary themes</u> (Check those that apply to the above activity.)</p> <input type="checkbox"/> Global Awareness <input checked="" type="checkbox"/> Financial/Economic/Business/Entrepreneurial Literacy <input checked="" type="checkbox"/> Civic Literacy <input type="checkbox"/> Health/Safety Literacy <input type="checkbox"/> Environmental Literacy			
<p><u>21st Century Skills</u> (Check those that students will demonstrate in the above activity.)</p>			
<p><b>LEARNING AND INNOVATION</b>  <u>Creativity and Innovation</u>  <input type="checkbox"/> Think Creatively  <input type="checkbox"/> Work Creatively with Others  <input type="checkbox"/> Implement Innovations  <u>Critical Thinking and Problem Solving</u>  <input checked="" type="checkbox"/> Reason Effectively  <input checked="" type="checkbox"/> Use Systems Thinking  <input checked="" type="checkbox"/> Make Judgments and Decisions  <input checked="" type="checkbox"/> Solve Problems  <u>Communication and Collaboration</u>  <input checked="" type="checkbox"/> Communicate Clearly  <input checked="" type="checkbox"/> Collaborate with Others</p>	<p><b>INFORMATION, MEDIA &amp; TECHNOLOGY SKILLS</b>  <u>Information Literacy</u>  <input checked="" type="checkbox"/> Access and Evaluate Information  <input checked="" type="checkbox"/> Use and manage Information  <u>Media Literacy</u>  <input type="checkbox"/> Analyze Media  <input type="checkbox"/> Create Media Products  <u>Information, Communications and Technology (ICT Literacy)</u>  <input type="checkbox"/> Apply Technology Effectively</p>	<p><b>LIFE &amp; CAREER SKILLS</b>  <u>Flexibility and Adaptability</u>  <input checked="" type="checkbox"/> Adapt to Change  <input checked="" type="checkbox"/> Be Flexible  <u>Initiative and Self-Direction</u>  <input checked="" type="checkbox"/> Manage Goals and Time  <input type="checkbox"/> Work Independently  <input checked="" type="checkbox"/> Be Self-Directed Learners  <u>Social and Cross-Cultural</u>  <input checked="" type="checkbox"/> Interact Effectively with Others  <input type="checkbox"/> Work Effectively in Diverse Teams</p>	<p><b>Productivity and Accountability</b>  <input checked="" type="checkbox"/> Manage Projects  <input checked="" type="checkbox"/> Produce Results  <u>Leadership and Responsibility</u>  <input checked="" type="checkbox"/> Guide and Lead Others  <input checked="" type="checkbox"/> Be Responsible to Others</p>

**Teacher Preparation: (What materials and set-up are required for this lab?)**

**Materials**

- Individual sheets with real life scenario including income information
- Large Pie chart
- Words for word wall
- Pencil
- Calculator
- Markers

**Set-Up Required:**

- <http://wa-appliedmath.org/>  
 Gather materials, Print out income scenarios for individual students.

**Lab Organization Strategies:**

**Grouping/Leadership/Presentation Opportunities:**

- Goal-setting is integrated into the project.
- Students will think about their potential income proactively, so that they make good decisions surrounding it.

Cooperative Learning:

- Students will work together, and brainstorm.

Expectations:

- Student participation
- Prior knowledge of Percent, fractions, gross and net income.

**Post Lab Follow-Up/conclusions:**

Discuss real world applications of personal budgeting from lab

- Managing a personal budget is an essential skill. It is also a good way to assess which students already understand the mathematical concepts of percentage and fractions enough to model a sample personal budget.

Career Applications

- Life
- Accountant, banker, business owner
- All businesses, especially saving and investing.

Optional or Extension Activities

- Students could research the average incomes of various careers that they are interested in.
- Students could research the rent or mortgage payment for a house or apartment where they'd be interested in living, and then research what kind of job they'd need to have to make that happen.

A more complex budget with a family and children.

Name	Occupation	Educational Level	Marital Status	Children	Gender/Age	US Wage (annual net)s
net Cantor	Part-time Janitor	High School Drop Out	S	2	F/37	\$14,990
ephen Larese	Carpenter	Less than 9 <sup>th</sup> grade	D	2	M/25	\$41,260
ad Grey	US Air Force Airman	High School Graduate	S	0	M/22	\$40,676
seph Lee	Financial Advisor	Bachelor's Degree	M	3	M/34	\$89,220

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

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Washington

## “Costs of Living Associated With Gross Income” Assessment

Directions:

Step 1: Calculate your Monthly Gross Income.

Step 2: Using the chart below as a guide, calculate the percentage you will need to budget for each category. Complete the Major Expenditure Budget using your calculations. Your calculations will be based on your monthly gross income.

Step 3: Check your calculations. Do they add up to your Monthly Gross Income? Did you remember to round up or round down?

**Remember to show your work!**

# Math

Annual Gross Income: \_\_\_\_\_

Monthly Gross Income: \_\_\_\_\_

### Major Expenditure Budget

Housing: \_\_\_\_\_

Food: \_\_\_\_\_

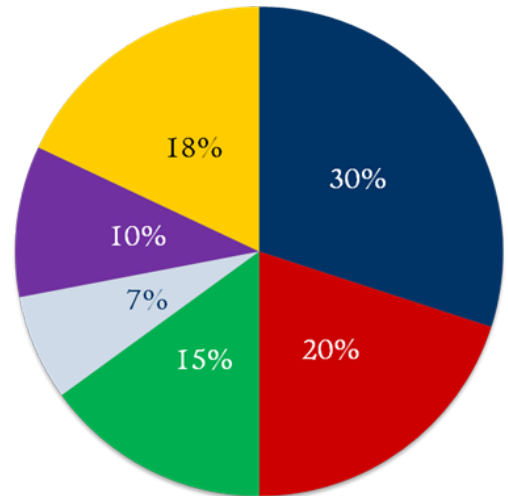
Transportation: \_\_\_\_\_

Insurance: \_\_\_\_\_

Savings: \_\_\_\_\_

Other: \_\_\_\_\_

Show your work here:



■ Housing      ■ Transportation  
■ Food          ■ Insurance  
■ Savings      ■ Other

Name(s): Genie Storvick, Carolyn Sturges  
 Lesson Title: Cost of Living associated with Gross Income  
 Date: June 26, 2013  
 Text: Financial Algebra

Lesson Length: 1 to 2 hours

Domain: Quantities N-Q	
Big Idea (Cluster): Reason quantitatively and use units to solve problems.	
Common Core State Standards: Reason quantitatively N-Q, Reviewing 7-EE, Solve Real-life and mathematical problems using numerical and algebraic expressions and equations.	
Mathematical Practice(s): Apply quantitative reasoning in understanding percent and ratio concepts in relation to a personal paycheck.	
Content Objectives: Apply mathematical concepts and real life best practices to determine a healthy personal budget. Understand what paycheck deductions are, and how they are calculated.	Language Objectives: Know how to read a paycheck, and what the various deductions are.
Vocabulary: Gross Income, Net income, Deductions, Pay period, Pay stub, Federal Withholding Tax, FICA, Retirement plan, Medical, Year-to-Date	Connections Prior to Learning From 7 <sup>th</sup> grade, students should be proficient at %, pie charts, ratios. (7-EE)
Questions to Develop Mathematical Thinking: <ul style="list-style-type: none"> <li>• Who decides what amounts to deduct from your paycheck?</li> <li>• How would you know if your boss made a mistake?</li> <li>• How much money would I have to make to move into my own apartment? Buy a car?</li> </ul>	Common Misconceptions: <ul style="list-style-type: none"> <li>• The numbers on the paycheck are a mystery.</li> <li>• Accountants don't make mistakes.</li> <li>• My money is instantly gone. Where does it go?</li> </ul>

Assessment (Formative and Summative):

- Formative Assessment: Teacher observation, Class participation in lab debrief
- Summative Assessment: Written assessment

Materials:

- Individual sheets with real life scenario including income information
- Large Pie chart
- Words for word wall
- Pencil
- Calculator
- Markers

Instruction Plan:

Launch: Students explore "new identities". Do you ever wonder where your paycheck goes?

Explore: Class will discuss pie chart together, and then predict percentages of major expenditures.

When I observe students: They are thinking, reflecting, working collaboratively, discussing, asking questions, suggesting answers, using calculators, showing mastery of understanding percentages.

Questions to Develop Mathematical Thinking as you observe: How much does your mom spend on food? Why is housing so expensive? How much do you think the monthly rent is in one of those new apartments down the street? Do you think you could live on this much money.

Answers: Answer will vary according to student.

Summarize: It's important to check your paystub and make sure the percentages have been calculated correctly. It'

Career Application(s):

- Life, accounting, business. This is applicable to every employer and employee.

21<sup>st</sup> Century Skills and Interdisciplinary Themes:

21<sup>st</sup> Century Interdisciplinary themes (Check those that apply to the above activity.)

- Global Awareness       Financial/Economic/Business/Entrepreneurial Literacy       Civic Literacy  
 Health/Safety Literacy       Environmental Literacy

21<sup>st</sup> Century Skills (Check those that students will demonstrate in the above activity.)

**LEARNING AND INNOVATION**

Creativity and Innovation

- Think Creatively  
 Work Creatively with Others  
 Implement Innovations

Critical Thinking and Problem Solving

- Reason Effectively  
 Use Systems Thinking  
 Make Judgments and Decisions  
 Solve Problems

Communication and Collaboration

- Communicate Clearly  
 Collaborate with Others

**INFORMATION, MEDIA & TECHNOLOGY SKILLS**

Information Literacy

- Access and Evaluate Information  
 Use and manage Information

Media Literacy

- Analyze Media  
 Create Media Products  
Information, Communications and Technology (ICT Literacy)

- Apply Technology Effectively

**LIFE & CAREER SKILLS**

Flexibility and Adaptability

- Adapt to Change  
 Be Flexible

Initiative and Self-Direction

- Manage Goals and Time  
 Work Independently

Be Self-Directed Learners

- Social and Cross-Cultural  
 Interact Effectively with Others

- Work Effectively in Diverse Teams

**Productivity and Accountability**

- Manage Projects  
 Produce Results

Leadership and Responsibility

- Guide and Lead Others  
 Be Responsible to Others

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