

## CUTTING EXPENSES

### Student/Class Goal

Students need math for the GED test and in their everyday lives. Working on a project to reduce household expenses gives students a chance to see how math works in their lives.

### Outcome *(lesson objective)*

Students will apply strategies for reducing expenses. They will practice operations with whole numbers and will construct bar graphs.

### Time Frame

Two 4 hour sessions  
Up to a month of documentation

**Standard** *Use Math to Solve Problems and Communicate*

**NRS EFL 2-5**

Number Sense	Benchmarks	Geometry & Measurement	Benchmarks	Processes	Benchmarks
Words to numbers connection		Geometric figures		Word problems	2.18, 3.21, 4.25, 5.25
Calculation	2.2, 3.2, 4.2, 5.1	Coordinate system		Problem solving strategies	
Order of operations		Perimeter/area/volume formulas		Solutions analysis	4.27, 5.27
Compare/order numbers	2.3, 3.3, 4.4	Graphing two-dimensional figures		Calculator	2.19, 3.22, 4.28, 5.28
Estimation	3.4, 4.5	Measurement relationships		Mathematical terminology/symbols	
Exponents/radical expressions		Pythagorean theorem		Logical progression	3.24, 4.30, 5.30
<b>Algebra &amp; Patterns</b>	<b>Benchmarks</b>	Measurement applications		Contextual situations	4.31, 5.31
Patterns/sequences		Measurement conversions		Mathematical material	
Equations/expressions		Rounding		Logical terms	
Linear/nonlinear representations		<b>Data Analysis &amp; Probability</b>	<b>Benchmarks</b>	Accuracy/precision	
Graphing		Data interpretation	4.20	Real-life applications	2.22, 3.27, 4.34, 5.35
Linear equations		Data displays construction	2.16, 3.17, 4.21	Independence/range/fluency	2.23, 3.28, 4.35, 5.36
Quadratic equations		Central tendency	3.18, 4.22		
		Probabilities			
		Contextual probability			

### Materials

Flip chart paper and markers or overhead projector and blank film  
*Expense Comparison Chart*  
 Example for Bar Graph  
 Cutting Expenses Learning Objects

### Learner Prior Knowledge

Students have performed operations with whole numbers. Students have read and interpreted

### Instructional Activities

Step 1 - Students will brainstorm ways to reduce their household expenses. For example: using coupons, turning the heat down two degrees, making coffee instead of buying a famous brand, taking the bus instead of driving. The teacher or a student will record answers on the board or on flip chart paper. The teacher will guide the students to group the ideas into related categories and label the categories. For example: using coupons and making coffee might be grouped together under the category of Groceries; turning down the heat and taking the bus might be grouped together and labeled Household Expenses or Transportation.

When students are finished grouping and labeling these ideas, they can use the web links included in this lesson to read about more expense reducing strategies. These strategies can be added to the appropriate categories. When all ideas are grouped and labeled, have students share which strategy they would start with to try to reduce their expenses. Each student will make a list of ideas that

he/she will try by choosing strategies from each category.

Step 2 - Students may want to use the *Expense Comparison* chart to track how much they spent on items in the previous month and how much they spend on these items during the month they are using the cost-cutting strategies they chose.

Students may want to group their strategies using the broad categories from the activity in Step 1 and discuss short and long-term strategies. For example, it may take only a week to get information about how much they save using coupons at the grocery store but it may take a month to get information about how much their electric or gas bill goes down.

Step 3 – When the students have finished collecting their expense information, they can do the following math activities. Teachers may want to assign the computations based on the students’ educational level so all students can contribute to the data.

- find how much they have reduced costs on each “item” and overall
- compare with other students how much they reduced expenses for each item and overall
- find the class average
- find what fraction of the original cost their saving is
- find what percent of the original cost their saving is

Step 4 - Because of the wide range of ability levels, the teacher may want to group students into multilevel groups with the more experienced students assisting the less experienced.

Explain to the class that they will use the data they have collected to construct a graph as a class. On an overhead or chart paper, reproduce the bar graph format found in the handout section of this lesson plan. Have the students find the total amount of money they saved for the month. Using these numbers and the students’ names, show the students the process for constructing a bar graph. Make sure the students are able to see bar graphs they have worked with before so they can use them for models. Guide the students through discussion about the vertical and horizontal axis, the units of measurement, etc. Once the bar graph is finished have students identify who reduced their costs the most, the least, etc.

Step 5 - Have students work in pairs or triads to help each other construct either individual or group bar graphs. Group graphs could show reduced costs in certain areas. Individual graphs could show how much was reduced in each area and overall.

Step 6 - The students who saved the most overall and who saved the most in each category could act as class experts and share the strategies they used to reduce their expenses.

**WRITING STANDARD EXTENSION** Students may want to write in their journals about their cost cutting experiences and what they learned.

**Assessment/Evidence** *(based on outcome)*

Lists of strategies, completed comparison chart, bar graphs and observations.

**Teacher Reflection/Lesson Evaluation**

*Not yet completed.*

**Next Steps**

Cutting Expenses Learning Objects will give students additional practice with their monthly expenses, needs and wants, and their personal spending plan.

**Technology Integration**

Money Saving Techniques <http://www.money-saving-techniques.net/>

5 Ways to Cut Household Costs <http://www.smartmoney.com/spend/family-money/5-ways-to-cut-household-costs/>

Top 7 Ways to Save on Household Expenses [http://frugalliving.about.com/od/householdsavings/tp/Household\\_Save.htm](http://frugalliving.about.com/od/householdsavings/tp/Household_Save.htm)

Household Expenses Tips [http://www.everylastpenny.com/Household\\_Expenses/](http://www.everylastpenny.com/Household_Expenses/)

How to Reduce Household Expenses <http://www.frugalmom.net/reducing-household-expenses.htm>

The Spending Plan <http://www.knowdebt.org/education/ACC.TheSpendingPlan.pdf>

Help With Life’s Financial Decisions <http://www.smartaboutmoney.org/>

**Purposeful/Transparent**

Improving math skills will help students pass the GED test; learning strategies to reduce expenses may help students be more efficient family members.

**Contextual**

Students are improving their math skills using their own expense information.

**Building Expertise**

These mathematical operations are not new to students, so this learning activity allows them time to practice math operations and graph construction.

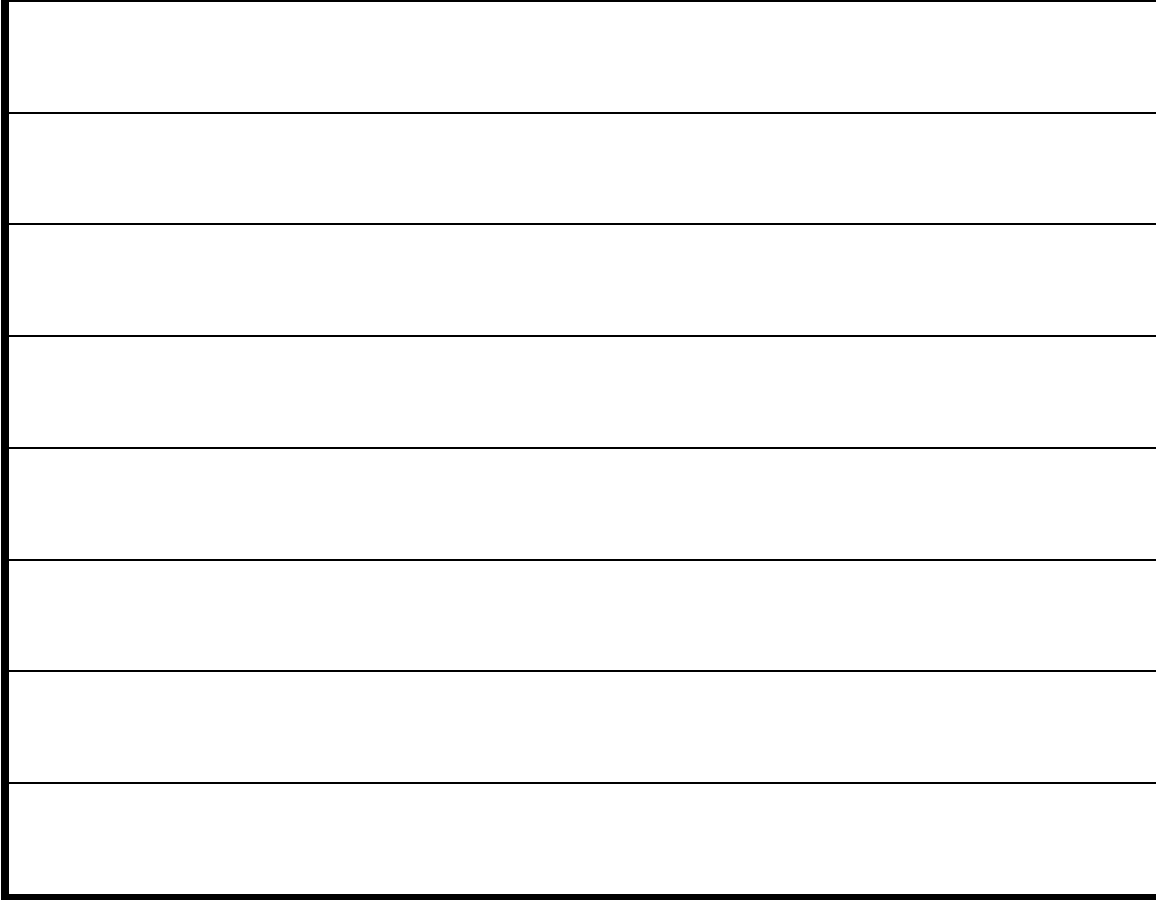
## Expense Comparison Chart

Expense Categories	Expenses Last Month	Expenses This Month
<b>Household</b>		
phone bill		
house payment/rent		
transportation		
<b>Groceries</b>		
coffee		
eating out		
<b>Total</b>		

Name \_\_\_\_\_ Date \_\_\_\_\_

# Example for Bar Graph

Dollar  
Amount



Student Names



<http://www.wisconline.org>

### **Monthly Expenses Worksheet**

**Author:** Kristin Biekkola

**School:** Fox Valley Technical College **Date:** 4/16/2002

**Description:** Students are provided with a Monthly Expenses Worksheet to help them understand the basics of budgeting, income, and spending.

[http://www.wisc-online.com/objects/index\\_tj.asp?objID=ABM3202a](http://www.wisc-online.com/objects/index_tj.asp?objID=ABM3202a)

### **Needs vs. Wants**

**Author:** Kristin Biekkola

**School:** Fox Valley Technical College **Date:** 4/8/2002

**Description:** The student reads information about the concept of needs and wants related to building a personal budget. In an interactive activity, the student identifies general purchases as "needs" or "wants" and lists the needs and wants in his/her own life.

[http://www.wisc-online.com/objects/index\\_tj.asp?objID=ABM3302](http://www.wisc-online.com/objects/index_tj.asp?objID=ABM3302)

### **Personal Savings/Spending Plan for Adults-Actual**

**Author:** Kristin Biekkola

**School:** Fox Valley Technical College **Date:** 4/16/2002

**Description:** Students are provided with review information and exercised from the planning part of the "Personal Savings/Spending Plan for Adults" learning object. This activity provides students with a printout of their actual spending for their personal needs and wants.

[http://www.wisc-online.com/objects/index\\_tj.asp?objID=ABM3202b](http://www.wisc-online.com/objects/index_tj.asp?objID=ABM3202b)

### **Personal Savings/Spending Plan for Adults - Projected**

**Author:** Kristin Biekkola

**School:** Fox Valley Technical College **Date:** 4/10/2002

**Description:** Students are provided with information and exercises to understand the concept of needs and wants relating to building a personal budget. This activity provides students with a printout of their planned personal needs and wants.

[http://www.wisc-online.com/objects/index\\_tj.asp?objID=ABM3202](http://www.wisc-online.com/objects/index_tj.asp?objID=ABM3202)