

SHOP 'TIL YOU DROP		Student/Class Goal Students need to be able to make decisions and choices regarding grocery shopping that will maximize their resources.
Outcome <i>(lesson objective)</i> Students will be able to compare food prices to find the lowest unit price and make choices about where to shop and what to purchase based on weekly sale items, cost comparisons, and items needed.		Time Frame Up to 4 hours
Standard <i>Use Math to Solve Problems and Communicate</i>		NRS EFL 3-5
COPS Understand, interpret, and work with pictures, numbers, and symbolic information.	Activity Addresses Components of Performance During this activity, students calculate the unit price of items when shopping. They must master division and understand the unit cost formula to determine the best buy.	
Apply knowledge of mathematical concepts and procedures to figure out how to answer a question, solve a problem, make a prediction, or carry out a task that has a mathematical dimension.	The unit cost and price comparisons are used as students solve problems involving money management.	
Define and select data to be used in solving the problem.	Collecting grocery ads and weekly sale flyers provide students with the information they need to find the best buy. Marketing strategies are also considered when shopping.	
Determine the degree of precision required by the situation.	Solve problem using appropriate quantitative procedures and verify that the results are reasonable.	
Solve problem using appropriate quantitative procedures and verify that the results are reasonable.	Using 10 items as a representation of their grocery shopping, students find the best buys using criteria developed during lesson.	
Communicate results using a variety of mathematical representations, including graphs, chart, tables, and algebraic models.	Students evaluate pie charts and develop spreadsheets to track expenses. They document their learning in classroom journals.	
Materials <i>Nacho Cheese Sauce</i> Handout Grocery ads with same products, different prices/quantities Calculators, play money <i>Consumer Expenditures</i> Handout/Overhead spreadsheet template Shop Til You Drop Learning Objects		
Learner Prior Knowledge Previous lessons would have introduced the concept of nutrition and healthy eating related to food choices. Brainstorm about grocery shopping and have students share the techniques they use to get the best buys. What do they do before going to the grocery store? Do they make a list? Do they look at sale flyers? Do they take an inventory of things they have on hand at home? Keep track of these suggestions using the K-W-L chart on an overhead or on the chalkboard. Also brainstorm about what students would like to learn about being a savvy grocery shopper such as comparing prices and unit prices.		
Instructional Activities Step 1 - Introduce the concept of unit cost using the handout, <i>Nacho Cheese Sauce – Determining Unit Cost</i> . Enlarge several grocery ads that advertise the same products in different quantities and prices. Display these ads for the class while you demonstrate how to calculate unit cost. The key here is to calculate unit cost whether it is per egg, per ounce, per cucumber. To compare costs each item needs to be in equal units. For example, take a look at the following prices for eggs. Notice that some prices are per dozen, per 18 or per 3-dozen. Jerry's IGA - \$.89/dozen Kroger's - \$2.25/3 doz. Schnucks - \$1.59/18ct. To determine the best buy we will need to calculate the cost per egg. How can we do this? What information do we need to know? We need to know that there are 12 eggs in a dozen. If 12 eggs cost .89 then the cost of one egg will be .89 divided by 12 or .07. How many eggs are in 3 dozen? (36) How would we calculate the cost of one egg if 3-dozen cost 2.25? We would divide 2.25 by 36, which equals .06. How much is the cost per egg for the Schnucks sale? How did you get that amount? What store offers the best buy for		

eggs?

$$\text{unit price (cost for 1)} = \frac{\text{total cost}}{\text{number of items}}$$

Next, include a problem that uses a grocery item sold by the pound or by the ounce. What information do we need to know? Using the format above, run the students through a similar exercise. This time do one for an example and then let the class calculate the rest, making sure they know what information is needed. Bring in grocery ads so students can practice determining best buys using unit pricing. Be sure practice includes various units such as ounces, dozens, etc. Students should make notes about conversions in their journals (ounces in a pound).

Step 2 – “Give” each student or group of students \$100.00 to spend for a week's worth of groceries. Have grocery ads from two stores available for students to use as well as calculators. Balancing preferences, healthy food choices, money and finding the best buys will be a fun and challenging exercise for everyone. Have each group share their purchases with the class and be able to justify their expenses. Have groups share their best buys and how these were determined.

Step 3 – Discuss grocery store marketing strategies, talk about grocery store layout, placement of products, aisle displays, sale leaders, and the store environment (music, free samples, coupons) What have students observed? Encourage students to be observant of the above tactics next time they are at the grocery store.

Step 4 - Students will create a real grocery list of 10 items based on their needs for a week and their grocery budget. This can be done individually, in a small group or in pairs. Have grocery ads available from at least two stores for the class to use while they make up their list. Talk about what factors influence their lists such as the sale flyers, driving distance, and calculating the best buy. Each student should determine which 10 items they are going to purchase this week and then go to the store and purchase them. Groups may need to split up if students want to go to more than one store.

Step 5 - When class convenes again, have everyone compare the grocery receipts on their purchases. What are some good buys you found? How? Remember to think about the driving distance between stores and the extra time this takes. Was it worth it? Why or why not? Also talk about the grocery store layout and atmosphere. What did students notice when they were shopping this time?

Step 6 - Pass out the *Fixed and Variable Consumer Expenditures* Handout or use as an overhead. Talk about the information presented in these pie charts and that because of the way it is presented readers can determine right away the largest budget expenses and the smallest budget expenses. Refer to the guided questions. Each student should calculate the percentage of their budget that is spent on groceries.

TEACHER NOTE This handout represents middle class amounts and may have to be modified to better characterize your classroom culture.

Step 7 - Talk about the obvious basic concepts learned during this unit such as unit cost and price comparisons. Also talk about concepts such as grocery store layout, marketing tactics, pricing, and convenience foods. Refer back to the K-W-L Chart begun during the first class session. Make a list of things students have observed. Talk about the list. Were all these questions answered?

Step 8 - Students will track their grocery expenses for several weeks using categories such as groceries, toiletries and bath items, cleaning supplies and eating out expenses. Each student will enter this information into a pre-designed spreadsheet template that the instructor has created. Students can then create a pie chart that shows the percentage of their grocery budget that is spent on each category.

Assessment/Evidence *(based on outcome)*

Best Buy Results
Pie Chart Spreadsheet
Teacher Observation
Student Journals

Teacher Reflection/Lesson Evaluation

Students will learn how to calculate the unit price of grocery items and determine the best buys and apply this knowledge to solving best buy problems with 80% accuracy.

Next Steps

Invite a representative from your county cooperative extension program to come and share tips for good nutrition, getting the best

buy, etc. Shop Til You Drop Learning Objects will give students additional practice with financial literacy.

Technology Integration

Grocery Shopping Tips http://www.momadvice.com/money/grocery_shopping.aspx

50 Tips for Grocery Shopping <http://zenhabits.net/50-tips-for-grocery-shopping/>

Saving at the Super Market <http://www.getrichslowly.org/blog/2008/06/30/saving-at-the-supermarket-15-great-grocery-shopping-tips/>

Live Simple <http://www.december.com/simple/live>

Reduce Your Grocery Bill <http://www.stretcher.com/stories/970303d.cfm>

KWL Teaching Strategy http://literacy.kent.edu/eureka/strategies/k_w_l09.pdf

Purposeful/Transparent

Making wise financial decisions is important for families.

Contextual

Grocery ads are used to develop student's knowledge of environmental print.

Building Expertise

The lesson builds on students understanding of healthy eating habits.

Nacho Cheese Sauce

Determining Unit Cost Problem

Perusing the super deals aisle at the grocery store the other day, I found some nacho cheese sauce. I decided to purchase two tubs. Each tub cost \$5.49 and held 4 pounds 6 ounces of salsa. We usually buy 20-ounce jars for \$2.29. How much money did I save by purchasing the super deal nacho cheese sauce?

Bonus: Give the unit cost for each of the sauces.

Solution: By purchasing the super deal nacho cheese sauce, the person saved \$5.05.

Answer to the Bonus: The unit cost for the tub purchase is 7.84 cents per ounce. The unit cost for the 20-ounce purchase is 11.45 cents per ounce.

1. The first step that was required was to find out how many ounces were purchased by buying the tub.

16 ounces equals one pound
4 pounds and 6 ounces equals 70 ounces

This is the total number of ounces in one tub.
Since two tubs were purchased, the person bought a total of 140 ounces.

PURCHASE	ITEMS	COST/ITEM	TOTAL COST	WEIGHT
SAUCE (TUB)	2	\$5.49	\$10.98	140 OUNCES
SAUCE (20 OZ)	7	\$2.29	\$16.03	140 OUNCES

2. 2 Tubs x \$5.49/per tub = \$10.98 for 140 ounces

To equal the same volume purchase, 7 (20) ounce containers must be purchased to equal the same 140 ounces.

Each (20-ounce jar) costs \$2.29

Therefore, 7 x \$2.29 = \$16.03

3. Subtracting the difference, \$16.03 minus \$10.98 equals \$5.05 in savings.

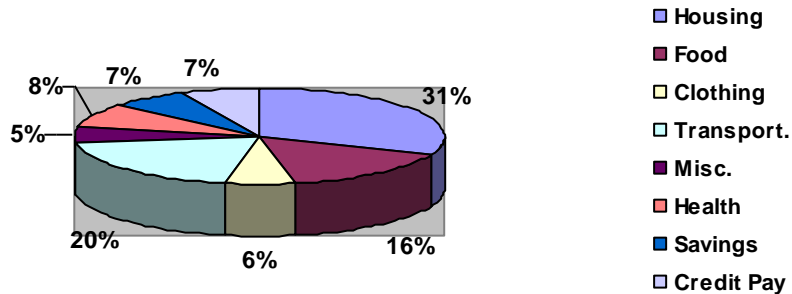
Bonus: Unit cost for the tub:

\$5.49 divided by 70 ounces equals 7.84 cents per ounce

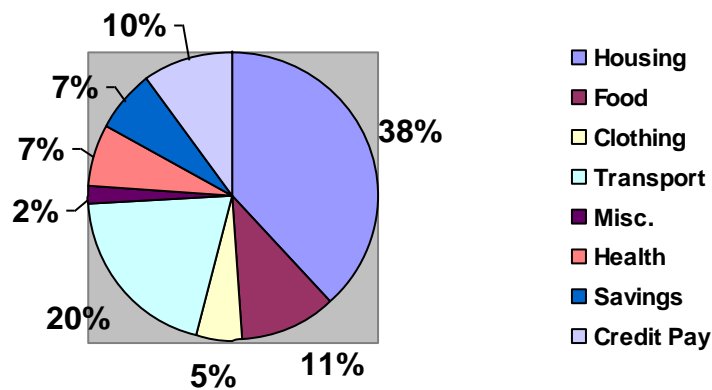
Unit cost for the 20-ounce jar: \$2.29 divided by 20 equals 11.45 cents per ounce.

Fixed and Variable Consumer Expenditures

The following is a general guideline for typical consumer budget expenses. Notice that food equals 16% of this particular budget.



This is another typical budget for consumer expenditures.



Guiding Questions

How does your grocery budget compare with the above percentages?

To determine this you need to find out what percent of your total budget you spend on groceries. Divide up your monthly expenses into the categories listed above and note each expense and the total for that category,

To determine percentages a good formula to remember is
 $\text{is/ of} = \%/100$

If your total monthly budget equals \$2000.00 and you spend \$360 on food, to determine what percent of your budget you spend on food you would multiply 360×100 and then divide by 2000. See the formula below.

$$360/2000 = \%/100$$

$$\% = 18$$

CONSUMER EXPENDITURES HANDOUT/OVERHEAD



<http://www.wisconline.org>

Best Buy Shopping

Author: Michele Williams

School: Fox Valley Technical College **Date:** 4/23/2002

Description: The learner is introduced to the concept of financial literacy.

http://www.wisc-online.com/objects/index_tj.asp?objID=ABM3402

Shop Til You Drop Learning Objects