BY THE POUND

GRADE: 4-5 **SUBJECT:** Mathematics

NATIONAL STANDARD(S) **THEME:** Ag Economics
(3-5) MA: 1.3, 1.5, 1.8, 1.10, 3.3, 3.5-6

FOOD AND FIBER TOPIC: I-B; IV-A,B

LEARNER OBJECTIVE
The student will estimate the weight and cost of produce and calculate the actual price.

VOCABULARY
***beef steer*—**Castrated male beef animal used for meat purposes.
***bushel*—**A dry measure of 32 quarts.
***current market price*—**The price at which a product can be bought and sold in a certain place at a certain time.

BACKGROUND
Whether you are a student buying an apple for lunch or a farmer selling wheat, you have to have a way to measure whatever it is you are buying or selling. The cashier at the grocery store probably will weigh your apple to decide how much to charge you. The amount of money the farmer gets for his or her wheat will depend on how many bushels he or she has produced. Some products are sold according to weight, some according to volume and some by the piece.

The price of a beef steer depends on how much the steer weighs. When a steer is sold, it is weighed on a large livestock scale. The weight is then multiplied by the current market price. If the current market price is 87 cents per pound, and the steer weighs 763 pounds, the value of the steer would be $663.81. Market prices are determined by how much of a product is available for sale, how much people are willing and able to pay for the product and other supply and demand factors. Other products sold by the pound include pecans, peanuts, cotton, peaches and mushrooms.

Wheat farmers sell the wheat they grow by the bushel. Like beef, the price of wheat per bushel depends on the current market value. Oats, barley, feed corn, rye and soybeans are also sold by the bushel. However, the seed the farmer purchases for replanting is priced by the pound. Garden seeds are sold by the ounce because most gardeners do not need large quantities. Herbs are measured in this way also.

Most of the produce you buy in the grocery store—apples, peaches, potatoes, tomatoes, squash—is sold by the pound. But if you go into the fields or buy the same produce from roadside stands or farmer's markets, you probably will pay for it by the bushel or half-bushel. The grower measures the produce by filling a bushel or half-bushel basket. Smaller quantities are measured in quart or pint baskets. Some produce is sold by the piece. Watermelons, for example, may be priced $2.50 per watermelon, no matter how big it happens to be. Corn on the cob usually is sold by the dozen. Pumpkins are sorted according to size—miniature, small, medium, large, and jumbo. Each pumpkin in a category will cost the same.

STEP-BY-STEP INSTRUCTIONS

1. Set up four or five work stations, and supply each with a different kind of produce, a grocery flyer showing prices for each kind of produce and a small scale that registers ounces and pounds (diet scales or kitchen scales).
2. Discuss kitchen safety rules.
3. Divide the class into four or five groups, and assign each group to a workstation. Hand out student worksheets. Review estimating, and discuss why it might be useful in a trip to the grocery store. Share background material.
4. Have students use the student worksheets to record their estimates of the weight and cost of the produce provided. Then have students weigh the produce and calculate the cost, based on prices listed in the grocery ads.
5. Have the groups move from station to station until each group has visited each station.
6. Have students total the weight of all the produce and calculate the total cost.
7. If all the totals are not the same, have students discuss possible reasons for the discrepancy (weights and costs may have been rounded up or down).

RELATED ACTIVITIES

1. Many of our measurements are based on methods people used before they had measuring devices like yardsticks and rulers. Horses were measured according to how many hands high they were. A yard of fabric was the length of the merchant's outstretched arm, from his or her nose to the tip of his or her thumb. A foot was the length of an average person's foot. Have students research to find the origins of some of our more common measurements.
2. Bring a bathroom scale to class, and have students weigh themselves. Then have students figure out how many of them it would take to equal the weight of a 763-pound steer. How much would each student be worth at a current market price of 87 cents a pound?
3. Discuss the difference between weight and volume. Have students discuss whether it is more economical to buy produce by the pound, by the piece or according to volume. Why would it be more convenient to measure field crops like wheat by the bushel instead of by the pound? Why is produce usually sold by volume or by the piece in farmer's markets but by the pound in grocery stores?
4. Bring in an assortment of measuring tools—measuring cups, canning jars, a bushel basket. Ask students to determine why some tools are better for measuring liquid than solids. Allow students to use the tools for measuring sand and water. What can students find in the classroom that could be measured by the bushel?
5. Discuss the different businesses that depend on scales. (Doctors weigh their patients to know how much medicine to prescribe. Greenhouses measure garden seeds. Pharmacists measure liquids and powders to create some types of medicines.) List other businesses and determine whether they sell their products by weight or volume.
6. Have students visit a grocery store and find five products sold by the pound, five sold by the piece and five sold according to volume.

7. Bring a treat to class. Have students measure or weigh it before eating.
8. Divide students into pairs. Have student hold his or her arms and hands straight out to the sides while the other one cuts a piece of string that stretches from the fingertips of the first student's right hand to the fingertips of his or her left hand. Then have the second student put the end of the string on the floor and see if the other end reaches the top of the first student's head. Have the students switch places and repeat the experiment. Discuss the results.
9. Have students compare the weights of different combinations of fruits or vegetables, using a balance scale. For example, how many grapes does it take to equal the weight of a peach? Do raisins and grapes weigh the same? Have students invent their own combinations, depending on the available produce and other materials.

RESOURCES

Student Books

Brink, Carol Ryrie. Magical Melons. Macmillan, 1990.

DiSalvo-Ryan & DyAnne. Uncle Willie and the Soup Kitchen. Morrow, 1991.

Patent, Dorothy Hinshaw. Nutrition: What's in the Food We Eat. Holiday House, 1992.

Teacher Resources

"America the Bountiful," American Farm Bureau Federation, 225 Touhy Ave., Park Ridge, IL 60068 (poster for grades 4-6 that shows the major crops and contains facts about the land and the people who farm it, 20 cents each with a minimum order of five).

Farm and Industrial Equipment Institute, 410 N. Michigan Ave., Chicago, IL 60611.

Related Internet Websites

Global Grocery List Project-- opportunity for students to share grocery prices with students worldwide: http://www.landmark-project.com/ggl.html

Dinner Is Served - weekly dinner planning for busy people. Includes menus, recipes, and a grocery list: http://www.dinnerisserved.com/

EVALUATION

Were worksheets completed for each member of the group?

ACKNOWLEDGMENTS

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Name_____

By the Pound

Produce name	Estimated cost	Estimated pounds	Actual cost	Actual pounds
			Total cost of produce_____	Total pounds_____

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