



Buying in Bulk

Grades: 3-5

Subjects: Math, Social Studies

Time: Two 30 Minute Sessions, Grocery Store Trip and Homework Assignment



***Standards:** Students will...

Geography Standard 14: Understand how human actions modify the physical environment.

Benchmark # 2: Know the ways in which the physical environment is stressed by human activity (e.g., humans produce excess waste products, in the US we produce on average 4.6 pounds of waste per person per day).

Geography Standard 16: Understand the changes that occur in the meaning, use, distribution and importance of resources.

Benchmark # 5: Know advantages and disadvantages of recycling and reusing different types of materials. **Geography Standard 18:** Understand global development and environmental issues.

Benchmark # 2: Know ways in which resources can be managed and why it is important to do so (e.g., conservation practices, recycling non-renewable resources).

Mathematics Standard 2: Understand and apply basic and advanced properties of the concepts of numbers.

Benchmark # 6: Use models to identify, order, and compare numbers.

Mathematics Standard 3: Use basic and advanced procedures while performing the processes of computation.

Benchmark # 8: Solve real-world problems involving number operations (e.g., computations with dollars and cents).

Mathematics Standard 6: Understand and apply the basic and advanced concepts of statistics and data analysis.

Benchmark # 1: Understand that data represent specific pieces of information about real-world objects or activities.

Benchmark # 4: Organize and display data in simple graphic organizers (e.g., tables, charts, graphs).

Benchmark # 5: Read and interpret simple graphic organizers (e.g., tables, charts, graphs).

Objectives: Students will be able to...

- Identify ways people produce waste materials and explain the need for waste reduction.
- Identify ways of reducing the amount of waste that goes into landfills (e.g., buying bulk, recycling, reusing materials).
- Represent, order and compare numbers.
- Solve real world problems (e.g., money problems) involving division.

Materials:

- Pencils
- Question form (included)
- Calculator (optional)
- Various size boxes of same product



Overview: The US Environmental Protection Agency reports that since 1960, the annual amount of waste produced per capita in the United States has more than doubled from 2.1 pounds of waste per person per day to 4.6 pounds of waste per person per day.

The aisles of the grocery store are very competitive. Vendors spend big money competing for shelf space and want their products to be easily seen. Companies spend millions of dollars each year in the design of eye catching packaging with high “shelf appeal.” However, each year most of this “over packaging” ends up in our already over burdened landfills. Much of the packaging is made of plastic that will remain around for centuries. It’s not always possible to avoid buying over packaged goods, recycle properly or “re-purpose” items such as plastic food containers or Styrofoam peanuts.

Kid's Speak: Companies package cereal and snacks in containers designed to attract your attention. Often too much cardboard and plastic are used in the packaging. Try to recycle or reuse the packaging as much as you can.

Eco-Fact: Approximately 40% of the solid waste mass that makes up our landfills are paper and cardboard.

Procedure:

1. First class session: Conduct a discussion and assign tasks.

Discussion: If you had to pay for your groceries, would you buy in bulk (big bags of snacks, cereals, and cookies) every few weeks or buy a little at a time (one small bag every day)?

Grocery Store Task: Go to the grocery store with your parents. Write down the cost of a box of your favorite breakfast cereal or snack. Also look for bigger and smaller size boxes of same product. Look on the side of the box in the “Nutrition Facts” label. Near the top there should be a line that reads “Servings per container” and gives a number. Write down the price and number of servings for 3 different size boxes of the same product. (The size of each serving should be the same, but is the cost the same?) Complete first column in the chart below.

Home Task: Calculate how much each serving of these foods costs: Divide the cost of a whole box of cereal by the number of servings it contains. For example: If a container costs \$1.00 and has 8 servings, divide \$1.00 by 8 = \$0.12 a serving. If students are not proficient with division, perhaps the help of parents and/or calculators would be needed. Complete second column in the chart below.

Cost for # of servings	Cost for serving size
\$ _____ for _____ servings	Each serving size cost \$ _____
\$ _____ for _____ servings	Each serving size cost \$ _____
\$ _____ for _____ servings	Each serving size cost \$ _____



2. Second class session: Conduct discussion to evaluate the results of the student investigations and draw conclusions based on results.

- Each time you eat a serving of this food you eat up one serving's worth of money. Usually, as the size of the box goes up, the cost of each serving size goes down- but the size of the portions stays the same! Ask students why they think this happens.

- Sometimes the real cost of an item is "hidden" from you. Some supermarkets have "bulk food" aisles, where you can buy things like granola, nuts, and cereal in bags instead of boxes. This is always much cheaper than buying boxed cereal. Why do you think the bulk food is cheaper? Hint: there are no colorful boxes with favorite characters on them. In other words, when you can buy food in a colorful box, and the same food is much cheaper in a plastic bag, what do you think you're really paying for with the boxed food? Did you know that lots of trees must be cut down to make all of the boxes that hold the cereal and snacks that we eat daily? Which would you rather have your parents buy, boxed cereals and snacks or bulk cereals and snacks? Why?

Adaptations:

- Do math together in class with teacher guidance rather than at home.

Extensions:

- Students can become advocates for less packaging and brainstorm ways that they could help the environment, perhaps by writing to and sharing their concerns with large companies such as Kellogg's.

- For tips on dietary guidelines and healthy eating habits visit the [USDA Food Pyramid](#).

GEF Community: Share the results of your investigation with other students from around the nation. Just take a minute and join the GEF Community online.

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