

# Packaging

# PACKAGING

## It's In The Bag

**SUGGESTED GRADE LEVEL:** 2-3

**OBJECTIVE:**

Students will:

- ❖ Compare optional containers suitable for carrying groceries from the store to home;
- ❖ Describe how much energy and natural resources would be saved in a year by using your own reusable grocery bag.

Manufacturing food containers and packaging – including grocery bags – consumes energy. Once empty, packaging makes up a big part of our solid waste. Almost half of all household trash is packaging. Vocabulary includes energy and reuse.

**TIME:**

One class period

**MATERIALS:**

Bags made of brown paper, white paper with handles, plastic, cloth, mesh or net and a cardboard box

**PROCEDURE**

For this lesson, it is effective to demonstrate the volume of bags one family might bring into the home in a single week by collecting your bags and bringing them to class for this lesson. Collect all of your bags including grocery bags; bread, potato and other food bags; lunch bags; department store

bags; etc. and bring them to class.

1. Bring all of your bags to class in one single bag. Hold this bag up and pull one bag from the original bag. Tell where that bag came from and what you brought home. Drop it to the floor and pull out another bag. Tell its story and drop it to the floor. Continue this until you have amassed a large number of bags on the floor in front of the students.

Tell students that, while each bag seemed useful at the time, all of these bags seem unnecessary now. Ask: What could you have done to use fewer bags?

2. Discuss reasons for carrying purchases home from the store in a reusable bag. Discuss that reusing bags saves energy and natural resources (trees, water, energy) over manufacturing new bags. Review the scenario, "No bag, please", located on the following page. Ask students to try it the next time they go to the store.
3. Discuss the practical merits of carrying groceries in the different bags you have brought to the class. Discuss the typical life span of the containers. (A brown paper bag will not last as long as a cloth bag.) Discuss disposal of the different bags once they can no longer be used to carry groceries. Can you recycle a plastic grocery bag? Where? What about the paper bags? How about a box? Discuss if any of the containers are easier to use than others. (The bag with handles is easier to carry than the ones without, but it may not hold as much. The box will hold heavy items, but it will not store as easily as a folded bag).

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4. Have students find out if the grocery store where they shop gives a small credit to customers who reuse grocery bags and/or if the store has a bag recycling/reuse program.
5. Ask: How many ways can you recycle or reuse a paper or plastic grocery bag? Challenge the class to a competition to see who can come up with the most ways and the most creative ways.

## Questions for the Class:

1. How many bags does your family bring home in a week? In a year?
2. Have students save their bags at home and add them up by type. How many paper? How many plastic? Create a classroom graph. Everyone knows that when you save paper, you save some trees that wouldn't have to be cut down to make newspaper.

## No Bag, Please

It is sometimes easier to try new things if you can get other people to try them with you. Maybe a friend or two from school or Mom and Dad will try the "No bag, please" experiment with you.

Find out how hard it is to get people used to saving paper. Try this project when you are going shopping. Take a big shopping bag with you. When you purchase something, watch carefully. Does the person at the counter start to put your purchase in a bag for you automatically? If this happens, say, "I don't need a bag, thanks." Then see how the person at the store acts. Surprised? Pleased? A little bit angry? Confused? How do you feel? Embarrassed? Ordinary? Good?

## SOURCE:

South Carolina Department of Health and Environmental Control. 2001.

*Action for a Cleaner Tomorrow: A South Carolina Environmental Curriculum Supplement.*  
Columbia, SC.

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## Necessary Wrappers?

**SUGGESTED GRADE LEVEL:** K-3

**OBJECTIVE:**

Students will realize that large amounts of packaging may be used to wrap products they buy.

**TIME:**

Approximately 20 minutes.

**MATERIALS:**

Packaged items or empty packaging, such as drink boxes, Styrofoam containers, packaging for convenience foods. Scale.

**PROCEDURE:**

1. Divide students into small groups.
2. Ask each child to carefully unwrap the product, saving all the packaging.
3. Weigh the pile of packaging and pile of product. Which weighs more, the product or the packaging?
4. Ask the children why there are so many wrappers. Identify the possible purpose of each. Ask: If you were going to package an item, how would you do it?
5. Ask the children to identify the source of raw materials for different types of packaging.
6. Ask the children to think of other things that their families buy that come in packages.
7. Ask: If we reduce the amount of packaging, will we reduce the amount of garbage?
8. How can we help?
  - ❖ Buy items in bulk and divide into durable containers for lunches.
  - ❖ Buy easily recyclable packaging – glass and metal.
  - ❖ Let stores know when items, such as vegetables, lunch meats or convenience foods, are over-packaged.
  - ❖ Write letter to companies that are over-packaging.
  - ❖ Think before you buy.

**FOLLOW UP:**

- ❖ Where does packaging go if you throw it away?
- ❖ How can you reduce the amount of packaging in your garbage can?
- ❖ Name two types of packaging that are difficult to recycle and two that are easy to recycle.
- ❖ How are products packaged in other countries (e.g., Mexico, China, Europe)?

**SOURCE:**

Cornell Waste Management Institute. 1991.

*Trash Goes to School*

(<http://cwmi.css.cornell.edu/TrashGoesToSchool/TrashIntro.html>).

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## All Wrapped Up

**SUGGESTED GRADE:** 2-4

**OBJECTIVE:**

To understand the purpose of packaging and when packaging is and is not needed. To identify wasteful packaging and to reduce it.

**TIME:**

Partial class period.

**MATERIALS:**

Product packaging and an old magazine

**BACKGROUND:**

Why do we buy one product instead of another? Often it's because of the packaging. Packaging accounts for 10-15% (and sometimes more than 50%) of the cost of a product and approximately 1/3 of what goes into a family's trash can. Excess and non-recyclable packaging adds to our waste problem. However, we can cut down on packaging.

Packaging has several uses. It may provide protection to a product during shipping. It may provide protection to the consumer by preventing contamination or tampering. Or it may prove a useful marketing tool for the manufacturer. In some cases, the packaging may serve multiple purposes. Packaging often differs from culture to culture. Generally, Americans are accustomed to seeing a lot of packaging materials. On the other hand, some European cultures use relatively little

packaging. For example, Americans expect their purchased items to be placed in a paper or plastic bag as a convenient method of carrying the item home. Some Europeans however, frequent open food markets where they bring their own wicker basket or cloth bag, which is used over and over again. In addition, U.S. supermarkets often feature fruits and vegetables wrapped in plastic shrink wrap and polystyrene (Styrofoam). Open food markets do not use synthetic wrapping, instead they rely on nature's own packaging, such as the banana peel or potato skin.

Packaging often serves as a way to promote a product, and we are often lured into buying something we may not really need or want.

**PROCEDURE:**

Have the students bring in examples of packaging. Discuss:

- ❖ Why is the product packaged? (To protect the product, protect health, prevent theft or tampering, provide advertising, provide convenience, promote purchasing, make the product look larger or more appealing)
- ❖ Is the packaging essential, or wasteful? Why or why not? What criteria are you using to make your decision?
- ❖ What influence do you think packaging has on how well the product sells? Think of a time when you asked your parents to buy you something because of the packaging.

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Design a way to categorize the packaging. For example, sort it according to “natural” packaging (bananas, apples, peanuts); recyclable packaging (paper bags, returnable bottles); and non-recyclable packaging. Discuss:

- ❖ What happens to the packaging once the product is used?
- ❖ Which packaging is made from: recycled materials, non-recyclable materials, renewable resources, non-renewable resources?
- ❖ Which packaging would you label: most wasteful, least wasteful? Why?

Brainstorm ways you could reduce the amount of packaging you purchase. For example, could you purchase products in bulk? How would this help reduce packaging? (A 3-ounce tube of toothpaste requires 50% more packaging per ounce than a 7-ounce tube.)

## FOLLOW-UP:

- ❖ List three examples of both recyclable and non-recyclable packaging.
- ❖ What criteria might you consider when deciding whether packaging is necessary or wasteful?
- ❖ What happens to most of the packaging you purchase? What do you think about this? How does this affect you?

## SOURCE:

Cornell Waste Management Institute. 1991.

*Trash Goes to School*

(<http://cwmi.css.cornell.edu/TrashGoesToSchool/TrashIntro.html>).

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## The Story of Packaging

**SUGGESTED GRADE LEVEL:** 4-5

**OBJECTIVE:**

Students will:

- ❖ Gain a better understanding of the resources that make up typical packaging and potential ways to reuse or recycle them;
- ❖ Identify many kinds of packaging;
- ❖ Describe waste disposal problems caused by packaging;
- ❖ Identify solutions for managing our packaging waste problems;
- ❖ Identify packaging made from recycled materials.

Vocabulary includes packaging, source reduction, reuse and recycle.

**TIME:**

Will vary depending whether research is done in class or as homework.

**MATERIALS:**

Aluminum can, plastic bag, cardboard box, steel can, glass bottle, *One Family Meal and Profile of a Package* included.

**BACKGROUND:**

In the past, packages such as thick glass bottles and cotton flour sacks were refillable and reusable. According to the U.S. Environmental Protection Agency, our society manufactures approximately 500 pounds of packaging per person each year. Packaging is necessary, but most companies design packages to be appealing and to sell the product, not to protect the environment. Packaging is defined as “excessive” when the wrap for the merchandise is not necessary for the sale of the product. A good example of excessive packaging is fruit such as apples, pears or lemons packaged in plastic wrap or styrofoam trays. Other examples are convenient, single-served snack items such as crackers, meat, cheese and a napkin packaged into one “meal.”

Packaging accounts for nearly one-half of the waste disposed in landfills and incinerators, and much of the packaging is plastic. Although plastic is designed to last many years, a third of the plastics produced in the United States are used in products with a life span of less than one year.

Reducing how much packaging we buy (source reduction) could greatly extend the capacity of our waste disposal systems, conserve our natural resources, and reduce pollution during the manufacturing and disposal stages of packaging. Another positive step to reduce waste is to buy products packaged in recycled materials. Good examples of this are found in boxes made from recycled paperboard and shampoo bottles made from recycled plastic.

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## PROCEDURE:

1. Divide the class into five groups, each group representing one of the following common types of packaging:
  - ❖ Aluminum can
  - ❖ Plastic bag
  - ❖ Cardboard box
  - ❖ Tin can
  - ❖ Glass bottle
2. Each group will research a packaging type. You may want to provide the attached guessing game questions, *Profile of a Package* as a guideline.
3. After completing the research, each group will report to the rest of the class what they have discovered about their type of packaging.
4. As a class, compare reports, discuss advantages and disadvantages of each type of container and decide which is most desirable.
5. Have students collect samples of packaging from products they buy for a period of time. Then ask: Could they have made wiser choices in their product selection? Could the manufacturer have made wiser choices?

## EXTENSION ACTIVITIES:

1. Ask students to compare how packaging is used today with how items were packaged in the past. (For example, today we buy many types of processed and prepared frozen potato items. In the past, vegetables may have been grown by the family and served fresh from the garden, or potatoes were purchased in sacks that were reused or returned to the store.)
2. Have students take home and complete handout *One-Family-Meal*, and discuss the results with the class.
3. Have students select one package type and design an environmentally sound package for the product taking into consideration product safety, shipping, and advertising/merchandising. This package would use few resources and also leave behind only a small amount of solid waste.

## SOURCE:

U.S. Environmental Protection Agency  
Washington, DC 20460

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## Profile of a Package

I am a \_\_\_\_\_ container.

1. Describe me.
2. What are some of the things I am used for?
3. What am I made of?
4. What natural resources do I come from?
5. Are large amounts of my raw materials available?
6. How does it affect the earth when people extract my raw materials?
7. Does it take a large amount of energy to produce me?
8. Am I thrown away after I am used?
9. Am I biodegradable? Am I photodegradable? (That is, will I breakdown in sunlight?)
10. Do I disintegrate if I am thrown into a river, lake or ocean?
11. What are some ways in which I could be reused?
12. Can I be recycled? Am I recycled? Where am I recycled?
13. What happens to me when I am recycled?
14. Who is responsible for disposing of me?
15. Who pays the cost for disposal?
16. Do you think I am a good container? Why or why not?
17. What would you do to improve me?

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## One Family Meal

**Parents:** Your child is studying the effect that product packaging has on what we throw away. For this exercise, we ask that you let your child assist you in preparing a meal in order to list all the packaging required in the components of a single meal. This meal may be simple soup and sandwiches, no special menu or preparation is required. Thank you.

**Student:** You are the cook's assistant for tonight's family meal. List all the packages and containers you will open to prepare the menu. (For example, boxes with liners, cans, jars, bottles, bags, etc.) You do not have to open the container for the first time to list it, and you do not have to use all of its contents. For example, if you use a spoonful of mayonnaise from a jar in the refrigerator, you would list the glass mayonnaise jar and the metal lid.

### Food Item Name

(examples are: Mayonnaise, Jello)

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### Package or Container Description

(examples are: Glass jar with metal lid, 6 oz. (177ml); Box with paper liner, 4 oz. (118 ml))

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## Container Calculations

**SUGGESTED GRADE:** 3-5

**OBJECTIVE:**

To illustrate that by wasting things in our home and at play we are using up the earth's vital resource supply.

**MATERIALS:**

Paper and pencil.

**PROCEDURE:**

Ask each child to list all the different containers that provide his or her evening meal; include all the materials used to make the container. For example, a child who eats soup, hamburger, ketchup, apple sauce, carrots, ice cream, and milk might have a list resembling the following:

- ❖ Soup-metal can with label
- ❖ Hamburger-plastic tray and clear plastic wrap
- ❖ Ketchup-glass bottle, metal cap, and paper label
- ❖ Apple sauce-glass jar with metal top and paper label
- ❖ Carrots-plastic or paper bag
- ❖ Ice cream- paper or cardboard container
- ❖ Milk-waxed cardboard container

Ask each child to count the number of containers that use each different material (glass, metal, paper, etc.) and the total number of containers used in his or her household. Children will be interested in seeing which family discarded

the most items. Stress accuracy-there will be a tendency to give elaborate totals and to magnify the amount used.

Ask each child to divide the total number of containers used by his or her household by the number of people in the household. This number will be an estimate of the amount discarded at one meal by one individual. Then have the children multiply this number by three to get an estimate for 1 day. To continue this illustration, estimate the number of containers discarded in 1 day by the whole class. This total will be amazing to them.

Have the children imagine that all the containers the class discarded yesterday were stacked up in a corner of the room. Ask:

- ❖ How much of the room would it occupy?
- ❖ How much of the room would a week's worth of garbage occupy?

Use the figure representing the number of containers thrown away by 1 person in 1 day. Multiply by the number of people in the community to determine the total number of containers thrown away in your community for 1 day. Multiply that number by 365 days a year. Review that these containers are made of resources that are necessary for survival.

If each person in your community (pop. 96,000) throws away 4 pounds of garbage each day:

- ❖ How many pounds does this equal in 1 day?
- ❖ How many tons is this?

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To help children grasp the concept of a ton (2,000 pounds), you might want to ask them how many tons some familiar object weighs (an average 4-door compact automobile weighs about 1 ton).

Have the children try to imagine where all this refuse is being put every day of every year in every community. Tell children that it costs money to dispose of all of this waste. Have children imagine that it costs our community about \$71 for each ton of refuse that is disposed of in a landfill. Ask:

- ❖ How much would waste disposal or combustion cost your community each day?
- ❖ How much would it cost per year?
- ❖ Where does this money come from?

To give children a better appreciation of this sum of money, ask them the price of a compact disk of a popular group. (For younger children, you might ask how much they get for an allowance or how much it costs to buy lunch at school.)

- ❖ Approximately how many CDs could you buy with the money your community spends on landfill or combustion in 1 day? In 1 year?

You might want to have children calculate how much money could be saved if each person in the community reduced the amount he or she threw away each day by 1 pound.

**SOURCE:**

U.S. Environmental Protection Agency  
Washington, DC 20460