



# WHAT A WASTE?

## Grade 4, Science and Technology

Source: Adapted from Paula Tullio, Wes Vickers, *Solid Waste*, Greater Essex County District School Board

### DESCRIPTION

This lesson will help students understand that excessive packaging and processing can waste natural resources and increase the amount of solid waste that will require disposal. They will conduct a hands-on exploration of different types of packaging and compare packaged food items.

### CURRICULUM LINKS – SCIENCE & TECHNOLOGY, GRADE 4

*Understanding Life Systems – Habitats and Communities*

Overall Expectation: 1

Specific Expectations: 1.1, 1.2

*Understanding Earth & Space Systems – Rocks and Minerals*

Overall Expectation: 1

Specific Expectations: 1.1, 1.2

### PLANNING NOTES

#### Materials

- Cardboard box
- Chart paper & markers
- Packaging (students bring from home)
- Food items from 5 categories: natural, reusable, recyclable, non-recyclable, recycled
- *Energy for Making a Cardboard Box* (Appendix 1)
- *Parent/Guardian Letter* (Appendix 2)
- *Packaging: What a Waste!* (Appendix 3)

#### Prior Learning

Human interactions often affect habitats in adverse ways. When humans change the landscape (i.e. by creating landfill sites) habitats are destroyed.

#### Learning Skills & Work Habits

Collaboration, independent work, responsibility

#### Recommended Class Time

- 2 periods

### TEACHING/LEARNING STRATEGIES

#### Day One

1. Show the class a cardboard box and ask what impact it might have on the environment. Follow up by asking students what cardboard boxes are used for and how they are made.
2. Project *Energy for Making a Cardboard Box* (Appendix 1) so that all students can read the diagram. In pairs, students can discuss how making cardboard has an impact on the environment – trees are used and habitats are destroyed and energy is consumed. Share ideas with the whole class.
3. Ask students what a food package is and discuss different types and terms. Record student answers and make sure to include the following five categories:
  - natural packages: bananas, oranges, etc.
  - reusable packages: cream cheese containers, paper bags, etc.
  - recyclable packages: aluminium cans, etc.
  - non-recyclable: items with excessive packaging, individually wrapped items, items using both metal and paper packaging, etc.
  - recycled: packages made from recycled materials like cardboard, cereal boxes, etc.
4. Working in groups, have students brainstorm as many different products as they can for each category of packaging. Discuss with the whole class and record their answers.
5. Ask students to bring in samples from home of each of the package categories (one item each may be sufficient). Make sure to emphasize that they are to be rinsed and cleaned. Send *Parent/Guardian Letter* (Appendix 2) home to explain.

## Day Two

1. Discuss the following questions with the whole class and record responses:
    - What products usually come in packages?
    - What products do not come in packages?
    - What types of foods come in packages?
    - What types of foods usually do not come in packages?
  2. Ask students to identify different types of packaging and come up with categories of natural resources used to produce the packaging. Examples include:

Packaging	Natural Resource
Paper/cardboard	Trees
Plastic	Fossil fuels
Steel/tin	Minerals
  3. Ask students to show and share package samples brought from home. Identify the purpose or function of all the food packaging and develop a class list. Collect the packaging that the students shared.
  4. Divide the class into five groups and give each group one of the following five items:
    - A. Natural package: banana, orange, or another fruit
    - B. Reusable package: cream cheese, yogurt, or another product in a plastic container
    - C. Recyclable package: pop can or another aluminium product
    - D. Non-recyclable package: individually wrapped candy or another product that is difficult to recycle
    - E. Recycled package: Box cereal or another product packaged with recycled material
2. Ask each group to use their item to fill out Part 1 of *Packaging: What a Waste!* (Appendix 3). Pass items around so that each group analyzes a package from each of the five categories.
  3. When all groups have completed the chart, discuss the following questions as a whole class:
    - What materials were used to make the packages?
    - Which packaging was necessary/most important? Which packaging was unnecessary/excessive?
    - Which product has the most packaging?
    - How could the packaging have been made in order to conserve natural resources?
    - Where does the packaging go when it is thrown in the garbage?
    - Why is excessive packaging a problem?
  4. After the class discussion, ask the five groups to complete Part 2 of *Packaging: What a Waste!* When they are finished, discuss the following questions as a group, before sharing ideas with the whole class:
    - Could something be done with the packaging (perhaps recycled or reused)?
    - How can we reuse the packaging?

## EXTENSIONS

**Get Creative:** In small groups, students select a product to redesign with the goal of using less packaging. Create an advertisement that explains the advantages of the new design and “sell” the product to the class.

**Partner with the Local Waste Authority:** Contact your local waste authority to learn how waste is disposed in your community. Arrange for a guest speaker to come into the school or for a field trip to the local waste disposal site.

## APPENDICES

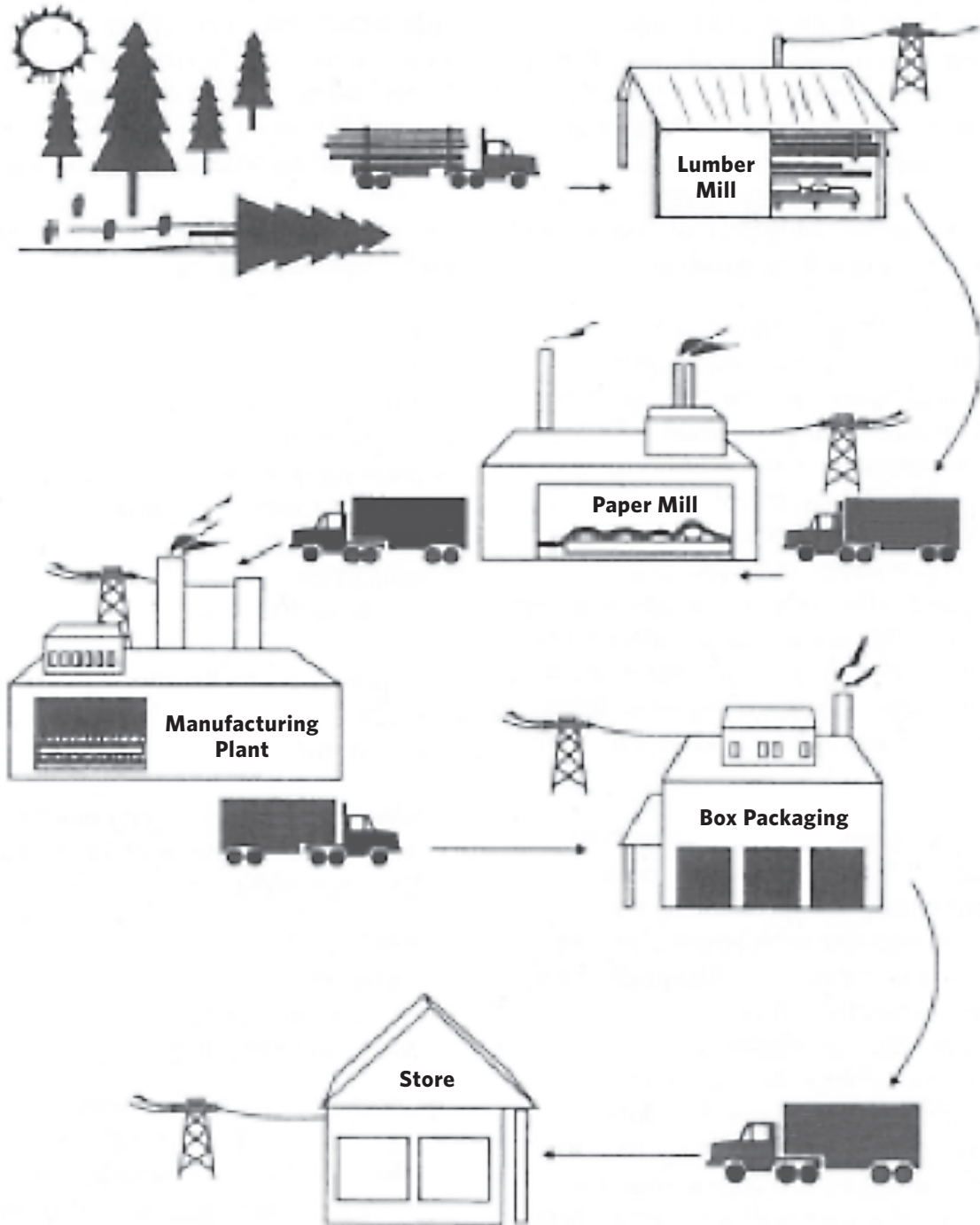
Appendix 1 – *Energy for Making a Cardboard Box*

Appendix 2 – *Parent/Guardian Letter*

Appendix 3 – *Packaging: What a Waste!*



APPENDIX 1  
WHAT A WASTE?  
ENERGY FOR MAKING A CARDBOARD BOX





**APPENDIX 2**  
**WHAT A WASTE?**  
**LETTER TO PARENT/GUARDIAN**

Dear Parent or Guardian,

Our class is studying packaging, solid waste, and the use of landfills. Your child will learn about why products are packaged and which products appear to be overpackaged (therefore creating more solid waste). This is where we need your help.

Each student is being asked to bring in the following:

- A. Natural package: banana, orange, or another fruit
- B. Reusable package: cream cheese, yogurt, or another product in a plastic container
- C. Recyclable package: pop can or another aluminium product
- D. Non-recyclable package: individually wrapped candy or another product that is difficult to recycle
- E. Recycled package: box cereal or another product packaged with recycled material

Please be sure to clean and rinse any items your child brings to class. Your cooperation is greatly appreciated.

Thank you.



**APPENDIX 3**  
**WHAT A WASTE?**  
**PACKAGING: WHAT A WASTE!**

Names: \_\_\_\_\_

**PART 1**

Choose five items you would like to examine. Write the name of each item in the *Name of Item* column. Read the *Purpose or Function of Packaging* list and check off the ones you think relate to the product. Then check off either *Amount of packaging seems necessary* or *Appears to be overpackaged*.

NAME OF ITEM	Purpose or Function of Packaging											Amount of packaging seems necessary	Appears to be overpackaged
	Prevent product from spilling	Protect from damage	Keep contents sanitary	Safety	Government laws	Identifies product	Theft protection	Instructions on how to use product	Makes product easy to use	Advertising	Other _____		
<b>A</b>													
<b>B</b>													
<b>C</b>													
<b>D</b>													
<b>E</b>													

**PART 2**

Which of the items (listed beside A, B, C, D, and E above) are packaged in:

Natural packaging (no paper, plastic, or other human-made materials)?	
Reusable packaging?	
Recyclable packaging (packaging that can be recycled)?	
Nonrecyclable packaging?	
Packaging made from recycled materials?	