



TEACHER GUIDE

- Assessment Rubric 4
- How Is Our Resource Organized? 5
- Bloom’s Taxonomy for Reading Comprehension 6
- Vocabulary 6



STUDENT HANDOUTS

- Reading Comprehension
 1. *What Is Waste?* 7
 2. *Pre-Consumer Waste*
 3. *Post-Consumer Waste*
 4. *Packaging*
 5. *Solid Waste Disposal*
 6. *Toxic Waste*
 7. *Pollution*
 8. *Waste and the Ocean*
- Hands-on Activities 11
- Crossword 15
- Word Search 16
- Comprehension Quiz 17



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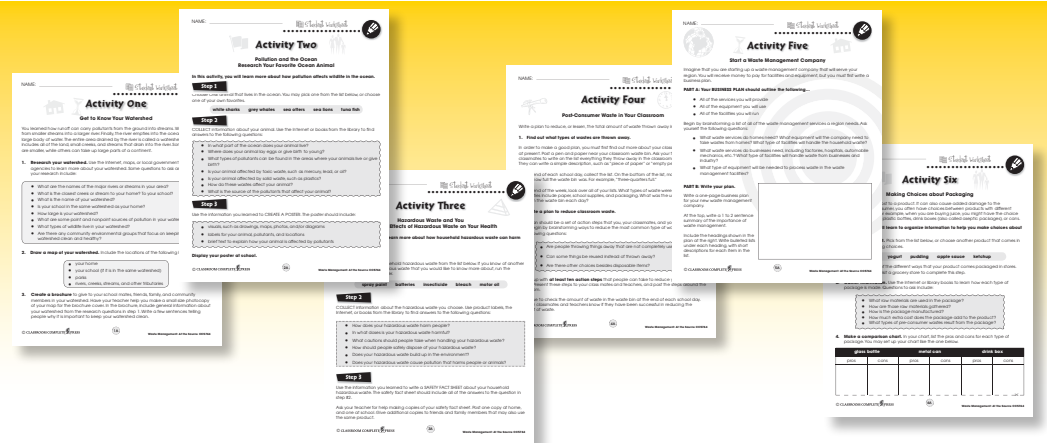
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What Is Waste?

1. Complete each sentence with a word from the list. Use a dictionary to help you.

- | | | | | |
|---------|-------|---------------|--------------|-------|
| dispose | toxic | raw materials | manufactured | waste |
|---------|-------|---------------|--------------|-------|

- The word _____ describes any part of an object that is not used.
- You _____ of objects when you throw them away.
- Objects that are made from machines using many different raw materials are called _____ goods or products.
- The word _____ describes something that is harmful to living things.
- Matter from the earth that is used to make products is called _____.

2. Match the product on the left to the waste that usually goes along with it.

1	cereal	plastic container	A
2	markers	bottle or can	B
3	soda	cardboard box, plastic bag	C
4	yogurt	tree scraps	D
5	notebook	cardboard box, plastic tubes	E

3. a) List five things that are often found in your classroom waste basket.

b) What do these five things have in common?



What Is Waste?

What do you think of when you hear the word "waste"? You might remember a teacher telling you not to waste paper. Maybe you have seen a program about not wasting water. In these cases, waste means not using more than you need.

Waste has another meaning. Any part of an object that is not used is called **waste**. For example, think about what happens when you eat an apple. Some parts you don't eat, such as the seeds, stem, and core. These are wastes that you might throw away. The part of the apple that you do eat is digested, or broken apart, inside your body. But your body cannot use all of the apple that you eat. The parts that it cannot use are removed from your body as waste.

STOP

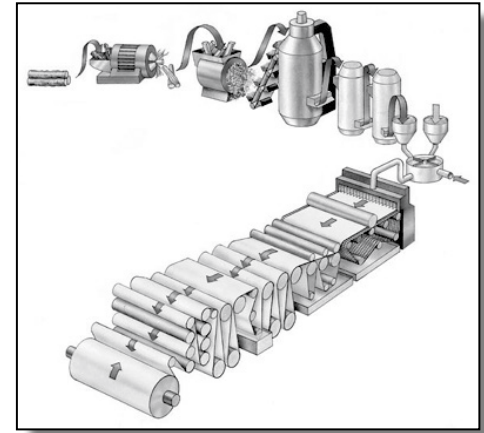
Describe the two meanings of the word waste. Have you thrown away any waste today?

When does waste cause problems?

In our modern world, the use of **manufactured** goods, or products, results in a lot of waste. Waste is produced during several steps:

- getting the **raw materials** to make the product,
- manufacturing the product,
- packaging the product, and
- at the end of the product's use.

Waste from manufactured products can cause big problems for people and the environment. Unlike the apple cores, many parts of manufactured goods do not easily break down in the environment. People must find places to dispose of these wastes, but space is running out.



Some wastes may also be harmful, or **toxic**. When these wastes get into land, water, and air, they can harm living things. People live in the environment, not separate from it. In most cases, there are no completely safe places to dispose of harmful waste. Some of the waste often gets back into the air we breathe, the water we drink, and the food we eat. Finding ways to manage waste is an important part of modern society.



What Is Waste?

1. Circle the word True if the statement is true. Circle the word False if it is false.

- Parts of a product that are used up are waste.
True False
- Your body gets rid of wastes as part of life processes.
True False
- The packages that products come in are an example of waste.
True False
- Waste is easy for societies to get rid of because of weekly trash collection.
True False
- Toxic waste can be safely disposed of by burying it deep underground.
True False

2. Put a check mark (✓) next to the answer that is most correct.

- Which waste breaks down easily in the environment?
 - A a banana peel
 - B a plastic wrapper
 - C a used battery
 - D a broken car
- Which of these wastes is toxic?
 - A tree scraps from a paper mill
 - B a half-empty box of rat poison
 - C an empty glass pickle jar
 - D a broken ceramic plate
- Jana drinks a box of apple juice. Which of these is NOT waste from this product?
 - A plastic wrappers
 - B the apple juice
 - C apple seeds and stems
 - D the straw
- Which of these is an example of packaging?
 - A a marker cap
 - B an orange peel
 - C a paper cup
 - D an egg carton



What Is Waste?

3. How would you state the meaning of waste in your own words?

4. Do all types of wastes create the same problems? Use examples to explain your answer.

Extension & Application

5. Take a look at the wastes thrown away in your CLASSROOM. Write a list of each item placed in your classroom trash bin for one day. Sort the wastes using the chart below.

Food Scraps	Packaging	Used School Supplies	Other

What is the most common type of waste that is thrown away in your classroom?

Were you surprised by the amount of waste or the type of wastes thrown away in your classroom? Explain.

6. Now take a look at the wastes thrown away in your HOME. Write a list of each item placed in your household trash bin for one day. What are the three main groups of trash in your home?

How does your household waste compare to the classroom waste? Are there differences in the types of amounts of waste? Explain.



Chart Your Waste

You will need:

- Mass balance
- Graph paper
- Pencil or marker

Set up a table like the one below.

Today's Waste

Description	Category	Mass, in grams

You are now going to record each piece of waste you throw away for one whole day. Write a short description of each piece of waste, for example, "plastic wrapper". Then, in the category column, write one of the following:

- packaging
- product

Products include all used or broken items, such as an empty pen.

At the end of the day, add up the total mass of waste for the day. Then, calculate the percent of your waste that was packaging and the percent that was used or broken products. Use the following equations:

$$\text{percent PACKAGING waste} = \frac{\text{mass of all packaging waste}}{\text{total mass waste}}$$

$$\text{percent PRODUCT waste} = \frac{\text{mass of all product waste}}{\text{total mass waste}}$$

Set up a pie chart to display your results.



Crossword Puzzle!

Across

- used to kill insect pests
- lets pollutants pass into air
- _____ materials
- containers, labels, etc.
- waste from a product before it is bought
- substance that tastes sour
- matter that has definite shape and volume
- rivers drain into the _____
- place where solid waste is buried
- manufactured item



Down

- packaging material made from petroleum oil
- type of landfill for once-living waste
- harmful to living things
- process by which raw materials are made into products
- another word for toxic
- parts of a product that are no longer useful
- facility where products are manufactured
- facility where solid waste is burned
- when harmful substances get into the environment



Comprehension Quiz

30

Part A

Circle the word True if the statement is true. Circle the word False if it is false.

- Parts of a product that you throw away are waste.
True False
- Pre-consumer waste is not as much of a problem as post-consumer waste.
True False
- Post-consumer waste is any waste made during the manufacturing of goods and products.
True False
- The usual packaging of toothpaste includes a metal tube, plastic cap, and cardboard box.
True False
- A landfill is a facility where solid waste is burned to produce fuel for energy.
True False
- The best way to dispose of paint, bleach, and other liquid hazardous waste is to pour it down a drain and run hot water for at least ten minutes.
True False
- Fertilizers used on farms are an example of nonpoint source pollution.
True False
- Oceans are so large that they cannot be harmed by human waste; therefore, they are a good place for dumping.
True False

Part B

Look at the package of loose paper to the right.

In the boxes below, describe each type of waste made by the package of paper.

a) pre-consumer

b) post-consumer



SUBTOTAL: /14

Waste in Our Oceans



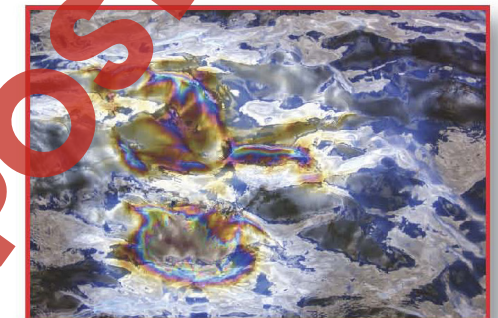
Fertilizer Leaching



Beach Pollution



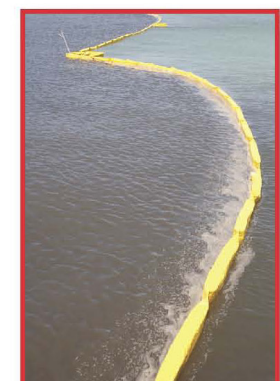
Shipwreck



Leak from Oil Barge



Chemical Waste



Pollution Control Barrier

NAME: _____

After You Read 



What Is Waste?

3. How would you state the meaning of **waste** in your own words?

4. Do all types of wastes create the same problems? Use examples to explain your answer.

Extension & Application

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3. Answers will vary

4. Answers will vary

5. Answers will vary

6. Answers will vary

Answers will vary

11

Answers will vary

12

Answers will vary

13

Answers will vary

10

14



EASY MARKING ANSWER KEY