



**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* ..... 7
  - 6. *Toxic Waste* .....
  - 7. *Pollution* .....
  - 8. *Waste and the Ocean* .....
- Hands-on Activities ..... 11
- Crossword ..... 15
- Word Search ..... 16
- Comprehension Quiz ..... 17

**EASY MARKING™ ANSWER KEY** ..... 19

**MINI POSTERS** ..... 21

**FREE! 6 Bonus Activities!**

**3 EASY STEPS to receive your 6 Bonus Activities!**

- Go to our website:  
[www.classroomcompletepress.com/bonus](http://www.classroomcompletepress.com/bonus)
- Enter item CC5764
- Enter pass code CC5764D



# Solid Waste Disposal

1. What do you think happens to your **garbage** after it is picked up by a garbage truck? Write your ideas on the lines below.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Use a dictionary to look up the meaning of the word **disposal**. Write the definition on the lines below.

\_\_\_\_\_  
\_\_\_\_\_

3. Match the term on the left to its definition on the right. You may use a dictionary to help you.

1	<b>atmosphere</b>	all of the living and nonliving things that surround you	A
2	<b>environment</b>	a material that removes solids from gas or liquid	B
3	<b>ground water</b>	a substance that can be burned to produce useful energy	C
4	<b>fuel</b>	related to a town or city	D
5	<b>gas</b>	the layer of gases above Earth's surface containing the air we breathe	E
6	<b>acid</b>	water beneath Earth's surface; the source of drinking water in springs and wells	F
7	<b>filter</b>	a substance that makes water taste sour and causes some materials to break down	G
8	<b>municipal</b>	matter that does not have a definite shape or volume	H



# Solid Waste Disposal

**D**id you ever think about what happens when you throw an object in the trash? You probably know that a trash collector empties your trash into a large truck. But where does it go? Most of the **solid wastes** produced in cities and towns go to solid waste **landfills**. Landfills are special facilities that are built to contain waste in the ground.

A smaller portion of the solid wastes produced in cities and towns go to solid waste **incinerators**. These are facilities where solid waste is burned at very high temperatures. Fewer solids are left after burning. Therefore, burning reduces, or lessens, the amount of solid waste that must be buried.

**STOP**

**Describe two different places that your trash can go when it is collected at the street.**

\_\_\_\_\_

\_\_\_\_\_

## How do landfills work?

There are different types of landfills. Waste from homes and schools goes to a *municipal solid waste landfill*. These landfills have strict government requirements to help prevent wastes from getting into the environment. The bottom and sides of the landfills have special liners that stop waste from getting into the soil or groundwater. Waste piles at landfills are **compacted**, or pressed down, by large machines. Any liquid that seeps out of the waste is collected and treated to remove harmful substances. Scientists frequently test the soil and water around landfills to be sure no wastes are leaking into the environment. When waste breaks down in landfills, **methane gas** is produced. Methane gas can have harmful effects in the atmosphere. However, it can also be burned for fuel. Many newer landfills collect the methane gas and pipe it to locations where it is used as a fuel source.



# Solid Waste Disposal

1. Fill in each blank with the correct word from the list below.

landfill	incinerator	methane gas	bioreactor
radioactive	neutralizes	microorganisms	compacted

- a) A(n) \_\_\_\_\_ is a facility in which solid waste is buried.
- b) Some solid waste is burned in a(n) \_\_\_\_\_.
- c) In landfills, the breakdown of solid waste produces \_\_\_\_\_, which can be collected and used for fuel.
- d) A(n) \_\_\_\_\_ is a type of landfill that breaks down waste from once-living things.
- e) \_\_\_\_\_ waste breaks down and releases a type of energy that is harmful to living things.
- f) Smokestack scrubbers spray liquid that \_\_\_\_\_ acids in the smoke.
- g) Tiny living things are sometimes called \_\_\_\_\_.
- h) In landfills, piles of trash are \_\_\_\_\_, or pressed down, by large machines.

2. Number the events from 1 to 6 in the order they occur in solid waste disposal.

- \_\_\_\_\_ a) Garbage trucks bring trash to a municipal solid waste landfill.
- \_\_\_\_\_ b) People put trash cans at the road side.
- \_\_\_\_\_ c) Large machines compact the trash.
- \_\_\_\_\_ d) People throw away wastes into a trash can.
- \_\_\_\_\_ e) Methane gas is collected and used for fuel.
- \_\_\_\_\_ f) Garbage trucks collect the trash.



# Solid Waste Disposal

3. Explain how fuel can be made in the following facilities:

- a) landfills: \_\_\_\_\_
- \_\_\_\_\_
- b) incinerators: \_\_\_\_\_
- \_\_\_\_\_

4. Explain why it is important for landfills to be lined.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Extension & Application

5. Make a poster showing a cross-section, or cutaway view, of a landfill. A cross-section is a diagram that shows how something would look if you cut it in half down the middle. Be sure to show and label the following:

- liners that stop liquid waste from getting into ground water
- the piles of trash
- large machines that compact trash
- methane gas collection pipes

You may use library or Internet resources to help you.

6. Research your municipal landfill or incinerator. Look in the phone book or Internet to find your local waste management company. Call or look on their website to find out whether your trash goes to a landfill or incinerator. Learn more about the facility that takes your trash. Ask the following questions:

- What happens to the trash when it first arrives at the facility?
- Is the trash sorted into different materials?
- What types of machines are used at the facility?
- What practices help stop waste from getting into the environment?





# 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

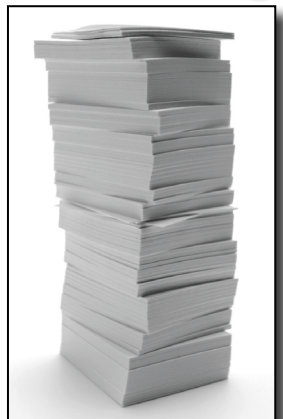
### Part B

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

# Packaging



Canned Packaging



Drink Packaging



Gift Packaging



Water Packaging



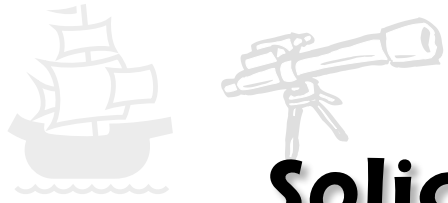
Take-Out Packaging



Transportation Packaging

NAME: \_\_\_\_\_

After You Read 



# Solid Waste Disposal

3. Explain how fuel can be made in the following facilities:

a) landfills: \_\_\_\_\_

b) incinerators: \_\_\_\_\_

4. Explain why it is important for landfills to be lined.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Extension & Application

5. Make a poster showing a cross-section, or cutaway view, of a landfill. A cross-section is a diagram that shows how something would look if you cut it in half down the middle. Be sure to show and label the following:

- liners that stop liquid waste from getting into ground water
- the piles of trash
- large machines that compact trash
- methane gas collection pipes

You may use library or Internet resources to help you.

6. Research your municipal landfill or incinerator. Look in the phone book or Internet to find your local waste management company. Call or look on their website to find out whether your trash goes to a landfill or incinerator. Learn more about the facility that takes your trash. Ask the following questions:

- What happens to the trash when it first arrives at the facility?
- Is the trash sorted into different materials?
- What types of machines are used at the facility?
- What practices help stop waste from getting into the environment?

**3.** Answers will vary

11

a) Methane gas is produced as solid wastes break down

b) Burning trash can be used to generate electricity

**4.** Answers will vary

12

So that liquids released from the waste do not enter the surrounding soil or ground water

**5.** Answers will vary

13

**6.** Answers will vary

**10** 14



# EASY MARKING ANSWER KEY