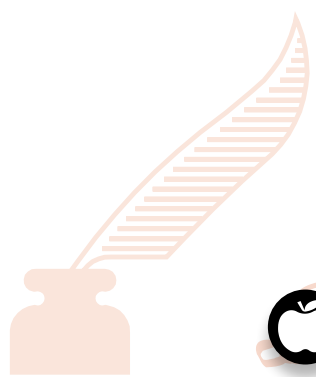


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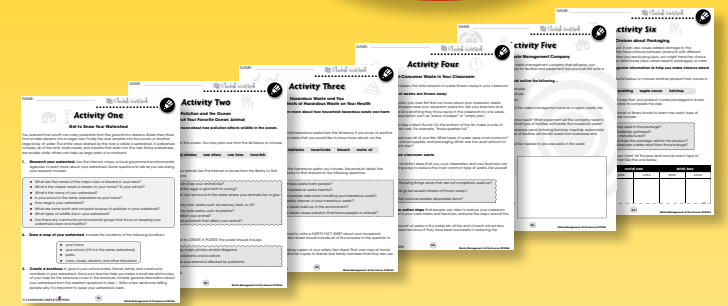


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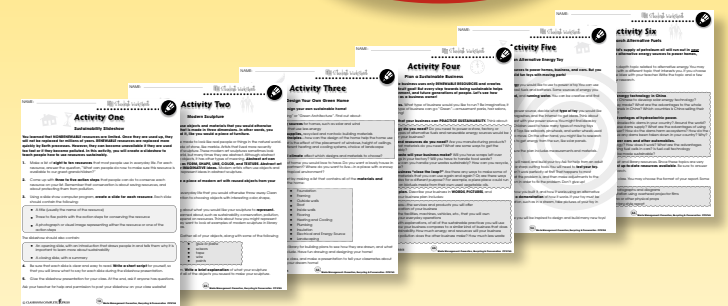
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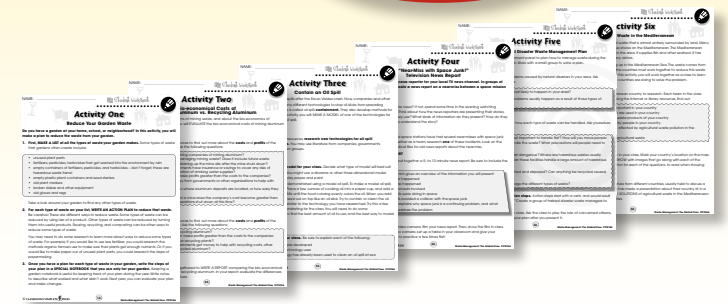
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Pre-Consumer Waste

1. Think about the chair you are sitting in. How was it made? What raw materials went into your chair? What types of wastes were produced when your chair was being made?

2. Draw a line from the word on the left to its definition on the right. You may use a dictionary to help you.

1	raw materials	A person who uses a product	A
2	solid	wood, metal, rock, and other matter from the earth used to make products	B
3	pre-consumer waste	all of the living and nonliving things that surround you	C
4	environment	leftover material from making products	D
5	consumer	a form of matter that has a definite shape and volume	E

3. In the left column, list three products that you use in everyday life. Then, fill in the right column with the raw materials used to make those products.

Product	Raw Materials



Pre-Consumer Waste

What types of manufactured products are around you right now? Perhaps books, pens, desks, a clock. All of these things are made in factories from **raw materials**. During the manufacturing process, some of the raw materials end up as waste. Waste from manufactured products is often called **solid waste**, because it is made up of mostly solids, such as wood and metal scraps.

Many people think of solid waste as parts of a product thrown away after use. However, most solid waste is actually created *before* a product even gets to you! This type of waste is called **pre-consumer waste**. A consumer is simply a person who uses a product. The prefix "pre" is added to mean "before."



Describe the meaning of the word **pre-consumer waste**. Give an example of **pre-consumer waste**.

What happens to pre-consumer waste?

For every ton of waste that people throw away after they buy products, twenty tons of waste was made to make those products. Finding a place to dispose of **pre-consumer waste** from factories can be a problem. Long ago, factories used to dump large amounts of solid waste into the environment. Now, stricter laws control how this waste must be disposed.



Getting raw materials can be costly and harmful to the environment. For example, metal mines need expensive machinery to operate. Large areas of land must be moved, and the area becomes unsuitable for many plants and animals.

When manufacturing first began, raw materials seemed plentiful. Land and space for wildlife also seemed plentiful. **Pre-consumer waste** was often simply thrown away. Now, things have changed. Raw materials are harder to find and more expensive to get. More land is used by people, so less land is available to wildlife. People now look for ways to make manufacturing less wasteful, and to save and reuse scraps instead of throwing them away.



Pre-Consumer Waste

1. Fill in each blank with the correct word from the reading passage. Words may be used more than once.

Products are manufactured from _____ a _____. During manufacturing, leftover scraps end up as _____ b _____. In fact, most waste from products is _____ c _____. In the past, most _____ d _____ was dumped in the _____ e _____. Now, _____ f _____ are becoming more difficult to get. People look for ways to _____ g _____ scraps instead of just throwing them away.

2. Use the words in the list to answer the questions.

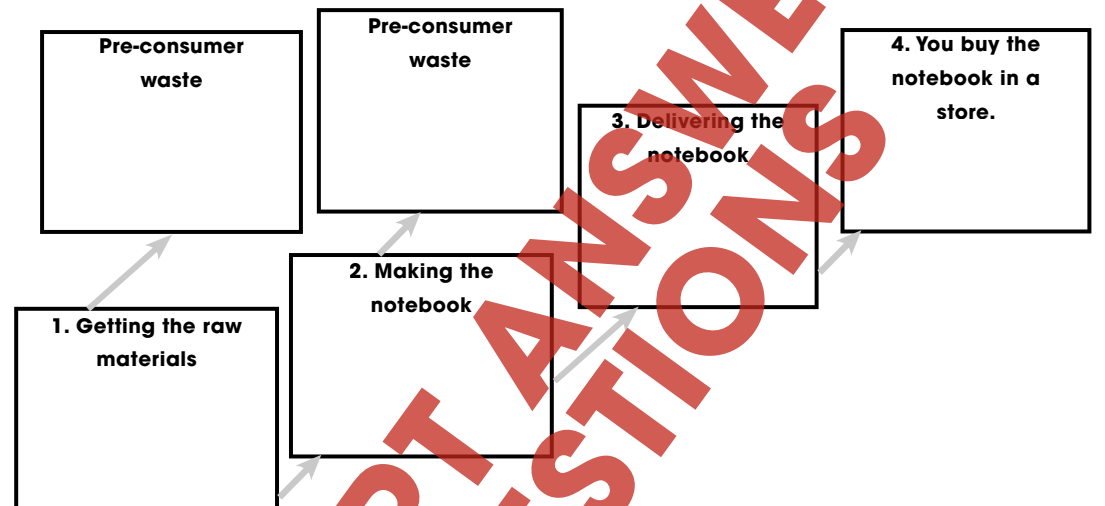
- | | | | |
|---------------|-----------------|----------------------------|------------|
| before mining | factory plastic | manufacturing pre-consumer | metal wood |
|---------------|-----------------|----------------------------|------------|

- Which raw material is used to make a bicycle frame?
- How do people get metals from the earth?
- Which raw material is used to make paper?
- What type of waste is made before you buy a product?
- When water bottles are manufactured, what type of pre-consumer waste is produced?
- What does the prefix "pre" mean when added to a word?
- What is the process by which products are made from many different materials?
- What is the name of a place that manufactures goods?



Pre-Consumer Waste

3. Fill in the flow chart below to show how a notebook is made. Begin by describing how people get the raw materials. Then, describe how the materials are made into the notebook. List the pre-consumer waste that is created during each process. Describe how the notebook gets from the factory to you.



Extension & Application

4. Design a brochure which will convince factories to lessen the amount of pre-consumer waste they produce. Choose any product, and write your brochure to the factory that makes that product.

In your brochure, be sure to include:

- information about the raw materials used in your product
- the benefits to the factory of using fewer raw materials
- ways that they can save raw materials, or use less to make the same amount of product



Reuse Contest

Hold a contest at your school to find the most USEFUL and CREATIVE ways to reuse everyday items. Work with a small group to run a contest for your class, or work with your whole class to run a contest for your school.

Part A

Create posters to **advertise** the contest. Be sure your posters answer the following questions:

- **Why** should students enter the contest? Tell students why it is important to reuse items instead of throwing them away.
- **What** are the contest rules? What are the prizes?
- **Where** is the contest located? Where should students drop off entries?
- **When** will the entries be judged? When is the deadline for entering?
- **Who** will judge the entries? Who is allowed to enter?
- **How** will the entries be judged? What are the judges looking for? Is there more than one category of winners? For example, you may want to offer one prize for the most practical reuse, and another for the most creative.

Part B

Collect all of the entries. Write a judging checklist that all of the judges can use. To write your checklist, think about what are the most important things you want to look for in entries. Do you want to use a point system for judging?

Part C

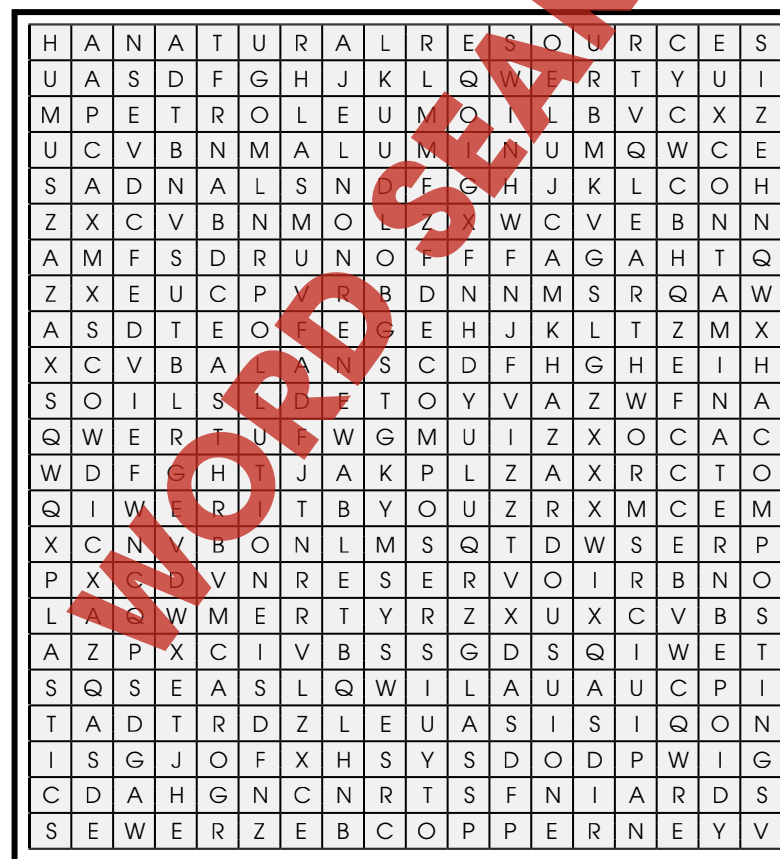
Choose the winners and runners-up. Keep the best projects on display for a week or two for parents, teachers, and students to view.



Word Search

Find all of the words in the Word Search. Words are written horizontally, vertically, diagonally, and some are even written backwards.

- | | | | |
|-------------|-------------------|---------------|-----------|
| aluminum | fuel | nonrenewable | sewer |
| composting | glass | paper | soil |
| contaminate | hazardous | petroleum oil | stone |
| copper | humus | plastic | toxic |
| decomposers | land | pollution | waste |
| drain | metal | reservoir | windmills |
| earthworms | natural resources | runoff | |



Comprehension Quiz

25

Part A

1. Circle the word **TRUE** if the statement is TRUE or Circle the word **FALSE** if it is FALSE. 8
- A) Corn stalks are an example of agricultural waste.
TRUE **FALSE**
 - B) Hazardous mining waste can contaminate water supplies.
TRUE **FALSE**
 - C) When oil is spilled from a tanker, it spreads out on the ocean floor.
TRUE **FALSE**
 - D) High-level radioactive waste can remain harmful for thousands of years.
TRUE **FALSE**
 - E) Solid waste from Hurricane Katrina is still a problem.
TRUE **FALSE**
 - F) About 300 pieces of space junk can be found orbiting Earth.
TRUE **FALSE**
 - G) Bio-economics is the study of how much money it costs to dispose of organic wastes.
TRUE **FALSE**
 - H) Incinerators can cause air pollution.
TRUE **FALSE**

Part B

Put a check mark (✓) next to the answer that is most correct. 4

- | | |
|---|--|
| 1. Which of these is high-level radioactive waste?
<input type="radio"/> A uranium ore
<input type="radio"/> B X-ray machines
<input type="radio"/> C cancer medicines
<input type="radio"/> D used fuel rods | 2. Which of these substances are found in waste from metal mines?
<input type="radio"/> A acids
<input type="radio"/> B oil
<input type="radio"/> C sewage
<input type="radio"/> D fungicides |
| 3. Which of these is an example of agricultural waste?
<input type="radio"/> A cyanide
<input type="radio"/> B acids
<input type="radio"/> C fertilizer
<input type="radio"/> D aluminum | 4. Which facility will help a community practice zero waste?
<input type="radio"/> A biogas
<input type="radio"/> B incinerator
<input type="radio"/> C landfill
<input type="radio"/> D nuclear plant |

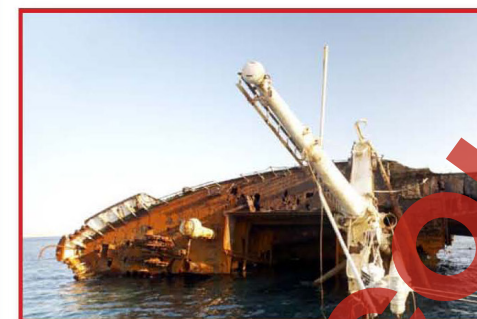
Waste in Our Oceans



Fertilizer Leaching



Beach Pollution



Shipwreck



Leak from Oil Barge



Chemical Waste



Pollution Control Barrier

NAME: _____

Before You Read



Waste Management Success Stories

1. Can you think of ways that your school or town could better manage waste? Write your ideas.

2. Explain the difference between the act of composting and the material compost. You may use a dictionary to help you.

3. Fill in each blank with the correct word from the list below. You may use a dictionary to help you.

- | | | |
|------------|-------------|---------|
| disposable | reduction | compost |
| biogas | incinerator | natural |

- a) _____ facilities turn food waste into a source of fuel.
- b) If you lessen the amount of waste you throw away, you are practicing waste _____.
- c) Trash is burned in an _____.
- d) _____ materials come from plants, animals, or the earth.
- e) Worms help turn plant waste into nutrient-rich _____.
- f) Products that are used once and then thrown away are _____.

1. Answers will vary

2. Composting is the act of breaking down organic waste. Compost is a nutrient-rich soil that is the product of composting.

3. a) biogas
b) reduction
c) incinerator
d) natural
e) compost
f) disposable

125
Answers will vary
126

The goal of sending nothing at all to a landfill or incinerator

- 127
1. a) Kovalam
b) Westside School
c) Kovalam
d) Canada
e) Westside School

2. a) worms
b) disposable
c) zero waste
d) compost
e) incinerator
f) pesticides
- 128

3. Answers will vary

4. Answers will vary

5. Answers will vary

Answers will vary
130

Answers will vary
131

Answers will vary
132

Answers will vary
133



EASY MARKING ANSWER KEY