

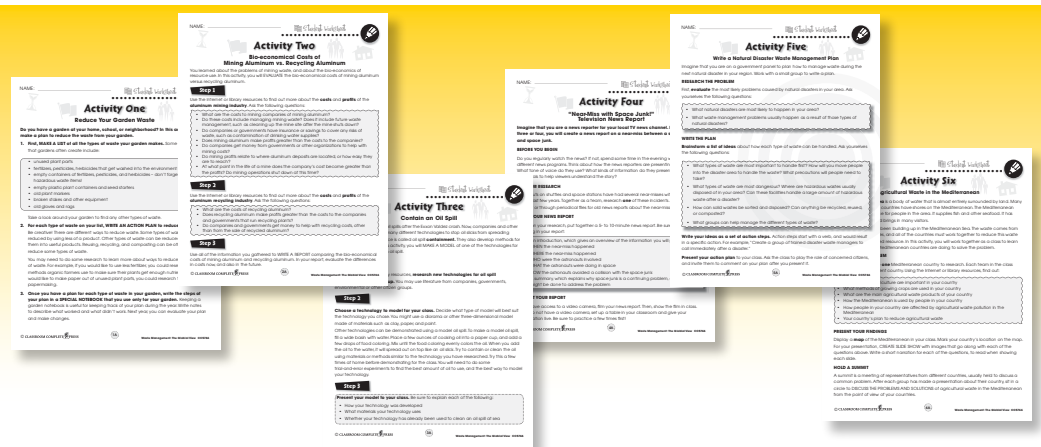
	TEACHER GUIDE	
•	Assessment Rubric	4
•	How Is Our Resource Organized?	5
•	Bloom's Taxonomy for Reading Comprehension	6
•	Vocabulary	6
	STUDENT HANDOUTS	
•	Reading Comprehension	
	1. Agricultural Waste	
	2. Waste from Mining	
	3. Oil Spills	
	4. Radioactive Waste	
	5. Waste from Natural Disasters	7
	6. Space Junk	
	7. The Costs of Waste	
	8. Waste Management Success Stories	
•	Hands-on Activities	11
•	Crossword	15
•	Word Search	16
•	Comprehension Quiz	17
	EASY MARKING™ ANSWER KEY	19
	MINI POSTERS	21

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Waste from Natural Disasters

1. In the web below, list **four** examples of natural disasters.



2. Use the words in the list to answer the questions. You may use a dictionary to help you.

- | | | | |
|----------------|------------------|--------------------|-----------------|
| tsunami | hurricane | earthquake | debris |
| sewage | factories | contaminate | disaster |

- _____ a) What type of storm causes very high winds, a lot of rain, and flooding over large areas?
- _____ b) What is a word for piles of broken parts of buildings, automobiles, and other solid objects?
- _____ c) What is another word for waste getting into a natural area?
- _____ d) What event causes the land to shake very hard, and can make buildings fall down?
- _____ e) What word describes an awful event?
- _____ f) Which word describes used water from homes and buildings that contains human waste?
- _____ g) What is a large tidal wave that can be caused by an earthquake?
- _____ h) What are large buildings where products are made from raw materials?



Waste from Natural Disasters

How do natural disasters produce waste?

Major natural disasters, such as **hurricanes, floods, tornadoes, earthquakes, and tsunamis**, can produce huge amounts of waste very quickly. This waste includes:



- **construction debris**, from buildings that have been destroyed;
- **organic matter**, from downed trees;
- **solid waste**, from cars, furniture, appliances, and other objects that can no longer be used;
- **hazardous waste**, from broken sewage lines, overflowing sewage treatment plants, flooded factories, and hazardous waste dumps.

Describe the types of waste natural disasters can produce.

STOP

How does waste from natural disasters cause harm?

Waste from natural disasters can cause many problems. The first thing to do after a natural disaster is to rescue people. Large piles of debris can make people difficult to find. Debris can bury people and cause dangerous conditions for rescue workers.

Hazardous waste can make people sick. When a large area is flooded, such as after a large hurricane or tsunami, the flood waters can contain hazardous waste. Rescue workers and people who were hurt in or stranded by the disaster can be in contact with flood waters for many days. People in contact with flood waters can get sick from bacterial diseases. They may also take in harmful chemicals that can cause problems years later.

After people are rescued from the disaster area, the solid waste problems can take years to clean up. Large piles of debris are still left in New Orleans from Hurricane Katrina in 2005 and in areas of Asia hit by the tsunami in 2004. Toxic waste and oil spills can harm habitats all around a natural disaster, killing wildlife and **contaminating** drinking water.



Waste from Natural Disasters

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

- a) Debris left after a natural disaster can be dangerous for rescue workers.
True **False**
- b) Downed trees are an example of hazardous waste left after a natural disaster.
True **False**
- c) Flood waters can contain harmful bacteria from sewage.
True **False**
- d) All of the debris from Hurricane Katrina in 2005 has been disposed of in landfills.
True **False**
- e) Large piles of debris are still left from the 2004 Asian tsunami.
True **False**

2. Use the graphic organizer to list four examples of each kind of waste from natural disasters.

Examples of construction debris: 1. _____ 2. _____ 3. _____ 4. _____	Examples of organic waste that might be left after a hurricane: 1. _____ 2. _____ 3. _____ 4. _____
Examples of hazardous waste: 1. _____ 2. _____ 3. _____ 4. _____	Examples of solid waste that might be left after flood waters dry up: 1. _____ 2. _____ 3. _____ 4. _____

Waste from Natural Disasters



Waste from Natural Disasters

3. What do you think are the **most dangerous** types of waste after a natural disaster? Include facts to support your answer.

4. Why do you think it takes so many years to clean up all of the waste from a large natural disaster, like *Hurricane Katrina* or the *Asian Tsunami*?

Extension & Application

5. Learn more about efforts to **clean up** after major natural disasters. Choose one large natural disaster, such as:

- **The 2005 Hurricane Katrina**
- **The 2004 Asian Tsunami**
- **The 2005 Pakistani Earthquake**

You may choose one of your own, but check with your teacher before beginning your research.

Using the Internet or library resources, find out how communities have been dealing with the waste problems left by the natural disaster that affected them. Make a chart like the one below, listing the main problems, what has been done to address the problems, and what still needs to be done.

Name of natural disaster: _____ **Date it occurred:** _____

Waste Problem Caused by the Disaster	What has been done to fix the problem so far?	What still needs to be done to fix the problem?



Biomass Product Fair

In this activity, you and your classmates will learn about the many different products that can be made from unused plant parts on farms, or **BIOMASS**.

FIRST, use the Internet or library resources to research a list of **10 to 20** different products that can be made from biomass. Include fuels, building materials, gardening supplies, and everyday items.

SECOND, have each student in your class choose a product from the list to learn more about. Students may work alone or in teams.

Once you have chosen your product, **research** answers to the following questions:

- What types of agricultural waste are used to make the product?
- How is the product made?
- Do farmers make money selling their waste to the manufacturers of the product?
- What is the product used for?
- Can the product replace similar products made from nonrenewable resources?

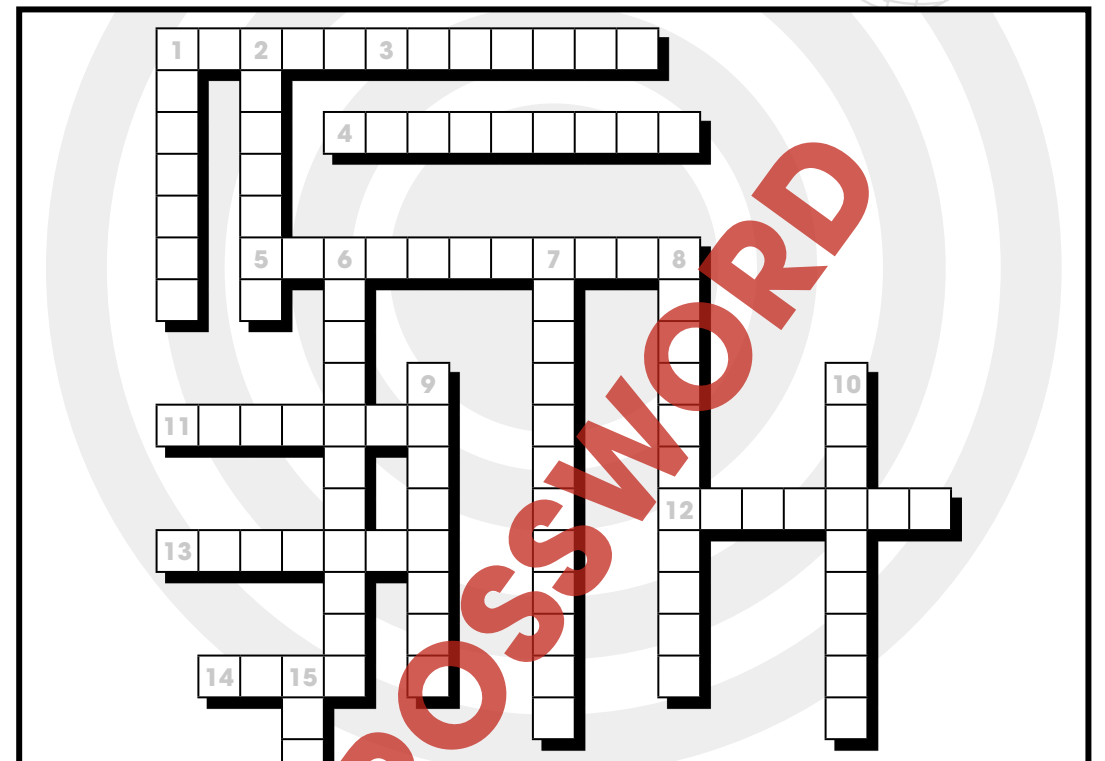
If possible, try to get a sample of your product. If that is not possible, get photographs or advertisements.

Make a **poster presentation** that answers all of the questions above and contains photographs of the product and the waste materials used to make it.

THIRD, set up a **Biomass Product Fair** in your classroom or common school area, such as the auditorium. Display the posters and products on tables, and have students stand near their displays to answer questions. Invite students, teachers, parents, and other members of your school community to walk through the Biomass Product Fair.



Crossword Puzzle!



Across

- the study of the costs of using natural resources
- broken down organic matter
- tidal wave
- made by breakdown of food waste
- fuel made from corn waste
- place where rock is taken from the earth
- space junk is in _____ around Earth

Down

- plant waste that can be used to make fuel
- farming method that doesn't use harmful pesticides
- valuable mineral
- to get into
- activities related to farming
- waste that releases harmful energy
- result of an oil spill (2 words)
- goal of sending nothing to a landfill (2 words)
- a hurricane is a _____ disaster



Comprehension Quiz

25

Part A

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

- Corn stalks are an example of agricultural waste.
True False
- Hazardous mining waste can contaminate water supplies.
True False
- When oil is spilled from a tanker, it spreads out on the ocean floor.
True False
- High-level radioactive waste can remain harmful for thousands of years.
True False
- Solid waste from Hurricane Katrina is still a problem.
True False
- About 300 pieces of space junk can be found orbiting Earth.
True False
- Bio-economics is the study of how much money it costs to dispose of organic wastes.
True False
- Incinerators can cause air pollution.
True False

Part B

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

- Which of these is high-level radioactive waste?
 A uranium ore
 B X-ray machines
 C cancer medicines
 D used fuel rods
- Which of these substances are found in waste from metal mines?
 A acids
 B oil
 C sewage
 D fungicides
- Which of these is an example of agricultural waste?
 A cyanide
 B acids
 C fertilizer
 D aluminum
- Which facility will help a community practice zero waste?
 A biogas
 B incinerator
 C landfill
 D nuclear plant

Waste from Hurricane Katrina (New Orleans 2005)





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Answers will vary

11

Answers will vary

12

Answers will vary

13

Answers will vary

14

EASY MARKING ANSWER KEY