



TEACHER GUIDE

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STUDENT HANDOUTS

- Reading Comprehension

1. What Is Waste?	
2. Pre-Consumer Waste	
3. Post-Consumer Waste	
4. Packaging	
5. Solid Waste Disposal	
6. Toxic Waste	
7. Pollution	

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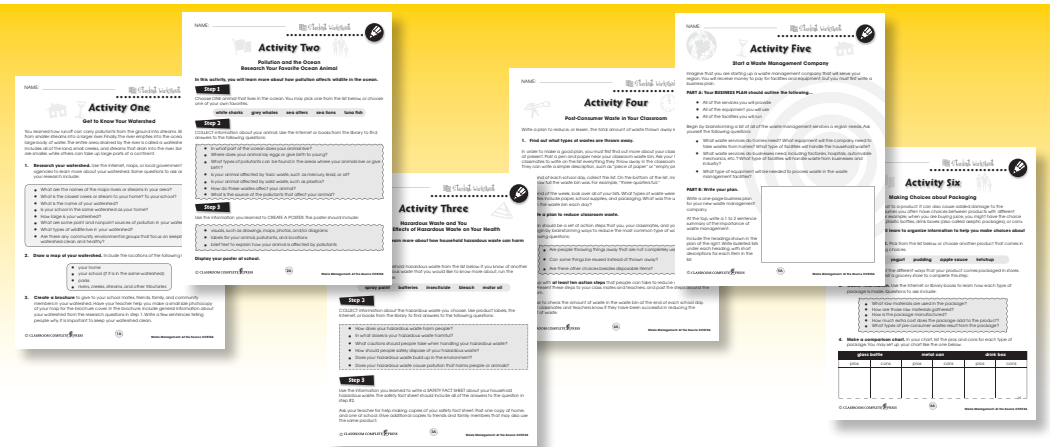
MINI POSTERS 21

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Waste and the Ocean



1. Imagine that the place where you live has a big rain storm. Describe how the rain that falls on the land makes its way to the ocean.

2. Write a definition for the word **runoff** on the lines below. You may use a dictionary to help you.

3. On the lines below, list **ten pollutants** that could be carried by runoff into the ocean.



Waste and the Ocean

How does waste get into the ocean?

All through human history, people have used the oceans to dump waste. The ocean was an easy dumping ground. People did not have to look at piles of waste near their cities and towns. The oceans seemed huge. Many people did not think that the oceans could be harmed by the wastes humans dumped.



Now, people know that the oceans are greatly harmed by pollution from our wastes. Many countries have passed laws against dumping wastes into the oceans. However, a lot of pollution still enters the oceans from runoff, illegal dumping, and oil spills.



Describe two ways that **pollutants** end up in the ocean.

How does pollution harm ocean life?

Oil is very harmful to many ocean animals. When oil spills in water, the oil spreads out in a thin layer on top of the water. This layer often covers a very large area. Ocean mammals must come to the water surface to breathe. When they do, their fur or skin becomes coated with the oil. This coating makes it difficult to swim. Oil also coats the feathers of birds at sea, making them unable to fly. Oil also contains toxic substances which can poison animals.

Solid wastes, such as plastic bags and balloons, kill many ocean animals. Whales, birds, sea turtles, and other animals mistake these wastes for food. The animals often die after eating these wastes, which get caught in their digestive system.

Toxic wastes that reach the ocean build up in the bodies of ocean animals. These toxins pass from one animal to another up the food chain. **Mercury** is a common toxic metal in the ocean. It **concentrates** in large predator fish, such as tuna. Many fish are unsafe to eat because of the mercury in their bodies.

Fertilizers wash into the ocean in runoff. They can cause the rapid growth of algae, known as **algal blooms**. Some kinds of algae make toxins that are taken up by certain fish. You might see signs warning people not to eat shell fish during algal blooms.



Waste and the Ocean



1. Fill in each blank with the correct word from the reading passage.

Throughout history, people have dumped waste into the _____ a.
Many countries now have _____ b. against dumping wastes in the _____ c.
However, a lot of _____ d. still enters the ocean.
_____ e. carries waste into the ocean after it rains.
_____ f. can coat the fur and feathers of ocean animals. Some ocean animals mistake solid wastes, such as _____ g. and _____ h. for food. _____ i. can build up in the bodies of predator fish, making them unsafe to eat. _____ j. in the ocean can cause harmful _____ k. blooms that can be toxic to animals.

2. Number the events from 1 to 7 to show the order of events that leads to a turtle dying from eating a plastic bag.

- _____ a) A rain storm washes plastic bag into a stream.
- _____ b) People bring food to a picnic in a plastic bag.
- _____ c) Deep in the ocean, a sea turtle mistakes the plastic bag for food.
- _____ d) Plastic bag lands at the bottom of a tree.
- _____ e) Stream carries plastic bag to ocean.
- _____ f) Plastic bag blows away in the wind.
- _____ g) Sea turtle eats plastic bag.



Waste and the Ocean



3. Explain how litter thrown on land can hurt animals in the ocean.

4. Explain two ways that oil can harm ocean animals.

1) _____

2) _____

Extension & Application

5. Make a poster to explain why students should help stop pollutants from entering the ocean. Be sure to include:

- how pollutants harm ocean animals
- ways in which pollutants get into the ocean
- ways that people can stop pollutants from getting into the ocean

Form or join a **clean-up group** to help stop pollutants from getting into the ocean. Your group can meet to pick up litter from beaches, streams, rivers, or parks. Be sure to have an adult help you, and find the right equipment to safely pick up and dispose of litter. Never use your bare hands.

Product Life Cycles

Create a Diorama

You learned that products begin with raw materials. These materials are manufactured, packaged, and delivered to stores. Consumers then buy and use the products. When the products are no longer useful, they become waste. This whole process is sometimes called a product's "life cycle." In this activity, you will create a diorama to show a product's life cycle.

1. Choose any product that you use in your everyday life, from school supplies to games to packaged foods.

2. Collect the following information about your product:

- What raw materials are used in your product and its packaging?
- How do people get those raw materials?
- How and where is your product manufactured?
- What types of pre-consumer wastes are produced?
- How is your product packaged?
- How is your product used by consumers?
- What types of post-consumer wastes are produced?

3. Use your answers to the questions above to design your diorama. Think about how to fit all of the steps in your product's life cycle into a shoebox-sized container. You may wish to use separate boxes for different steps. Be sure to include all of the following:

- getting raw materials
- manufacturing the product
- using the product
- pre- and post-consumer waste from the product and its packaging

4. Construct your diorama. You can use any materials you like. You might use foil, wood, clay, construction paper, glue, figurines, paint, etc. Be creative!

Present your diorama to your class. Be sure to discuss each of the questions in #2 during your presentation.

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

Part C

Answer each question in complete sentences.

1. What is the difference between **pre-consumer waste** and **post-consumer waste**? Give an example of each.

2. Describe two reasons to choose products with the least amount of **packaging**.

3. Describe what **toxic waste** is. Give two examples of toxic waste that you might find in your home, and tell how to dispose of them safely.

4. What is the difference between **point source** and **nonpoint source** pollution? Give an example of each.

5. Explain how living things in the ocean are harmed by **pollution** made by people on land. Give two examples to support your answer.

SUBTOTAL: /16

Waste in Our Oceans



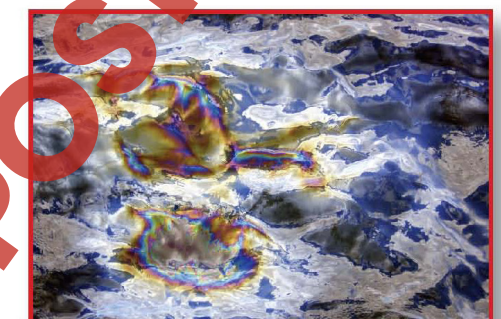
Fertilizer Leaching



Beach Pollution



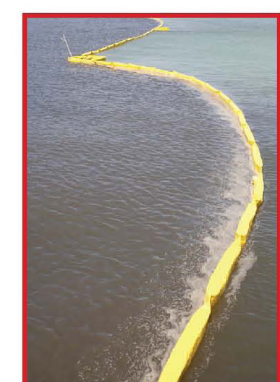
Shipwreck



Leak from Oil Barge



Chemical Waste



Pollution Control Barrier

NAME: _____

After You Read 



Waste and the Ocean

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1) _____

2) _____

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3.

Answers will vary

Answers will vary

11

4.

Coating fur and feathers, toxins

Answers will vary

12

Answers will vary

13

5.

Answers will vary

Answers will vary

10

14



EASY MARKING ANSWER KEY