

## Get ready!

① Before you read the passage, talk about these questions.

- 1 What are some types of waste?
- 2 What are some ways of disposing of waste?

## Managing Waste

Our **waste disposal** methods aren't always the best. Consider this: the Pacific Ocean has a **garbage patch** containing about 100 million tons of trash. Surely, there are other ways to eliminate waste!

Industrialized countries often put **solid waste** in incinerators or landfills.

**Waste-to-energy incinerators** make use of garbage. They create energy and reduce garbage volume by 90%.

**Sanitary landfills** hold large amounts of **municipal** and **industrial solid waste**. And when they are full, the land can be developed. However, both of these methods create greenhouse gases. And eventually, all landfills leak. This can affect the groundwater supply.

Still, these methods are preferable to **open dumps**. These areas are breeding grounds for disease and water contamination. They are frequently found in developing countries because they require the fewest resources to build or maintain. Yet the long term costs are worse than any other type, since the land is unusable for any other purpose.

**Deep-well disposal** is a safe way to store **hazardous** liquids. However, there are few places to employ this method. **Surface impoundments** impact on the environment too. If it rains too much, they overflow, and waste gets into the surrounding area. But they are cheap and easy to build.

**Toxic** liquids can be detoxified, too.

**Bioremediation** removes toxins without polluting soil and water.

**Phytoremediation** is another clean method, though the plants used may become poisonous to animals. If monitored properly, they are effective disposal techniques.

## Reading

② Read the textbook passage. Then, mark the following statements as true (T) or false (F).

- 1 \_\_\_ The land over and around sanitary landfills is unusable for any other purposes.
- 2 \_\_\_ Deep-well disposal sites can overflow if there is a lot of rain.
- 3 \_\_\_ Phytoremediation can lead to animals ingesting toxic materials.

## Vocabulary

③ Match the words (1-8) with the definitions (A-H).

- |                          |                                   |
|--------------------------|-----------------------------------|
| 1 ___ toxic              | 5 ___ surface impoundment         |
| 2 ___ phytoremediation   | 6 ___ municipal solid waste       |
| 3 ___ waste disposal     | 7 ___ industrial solid waste      |
| 4 ___ deep-well disposal | 8 ___ waste-to-energy incinerator |

- A waste produced by homes and businesses  
 B methods of removing unnecessary materials  
 C a hole in the ground where hazardous liquids are disposed  
 D removal of hazardous waste by plants  
 E a system that burns trash and uses it to generate electricity  
 F poisonous; harmful to health  
 G waste produced by activities like manufacturing and agriculture  
 H a method of removing hazardous liquids by pumping them into rock



**4 Write a word that is similar in meaning to the underlined part.**

- Some types of waste are very dangerous to public health.  
\_ a \_ \_ r \_ \_ u \_
- Starting a(n) large hole where waste is abandoned is illegal in many places.  
o \_ \_ \_ \_ u \_ p
- The method of removing hazardous waste with bacteria is not effective with pollution from metals and salts.  
\_ \_ o r \_ \_ \_ d \_ \_ \_ \_ \_
- Garbage in this city is taken to a place where trash is compacted and then covered with foam.  
\_ \_ n i \_ \_ \_ \_ l \_ \_ \_ \_ i \_ \_
- Many types of waste that is not liquid or gas can be recycled.  
\_ \_ l \_ d \_ \_ \_ \_ e
- The Atlantic Ocean has a large area where garbage is collected that is as big as a small nation.  
\_ a r \_ \_ \_ \_ \_ \_ t \_ h

**5 Listen and read the textbook passage again. What are some problems with sanitary landfills?**

## Listening

**6 Listen to a conversation between two scientists. Mark the following statements as true (T) or false (F).**

- Moving waste is not necessary with bioremediation and phytoremediation.
- All waste from the factory will be biodegradable.
- The man worries a surface impoundment could contaminate the area.

**7 Listen again and complete the conversation.**

- Scientist 1:** What about a 1 \_\_\_\_\_ ?
- Scientist 2:** Well, those are low-cost. But 2 \_\_\_\_\_ it rains? We're trying to avoid contaminating the surrounding area.
- Scientist 1:** Yeah, they could overflow. 3 \_\_\_\_\_ might be a good option.
- Scientist 2:** Maybe. There is a good site for it near the factory. I'm just 4 \_\_\_\_\_ .
- Scientist 1:** Well, this area doesn't get 5 \_\_\_\_\_. That's a major cause of leaks for deep-wells.
- Scientist 2:** You're right. Maybe that's the 6 \_\_\_\_\_ .

## Speaking

**8 With a partner, act out the roles below based on Task 7. Then switch roles.**

**USE LANGUAGE SUCH AS:**

*My only/main concern is ...  
I'm just worried about ...  
What if ...?*

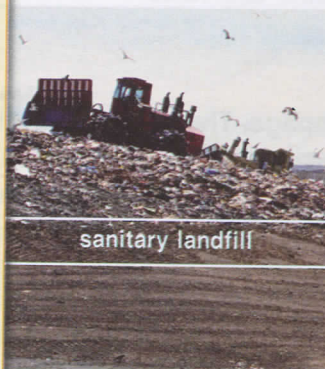
**Student A:** You are a scientist who was hired to advise a factory on its waste disposal methods. Talk to Student B about:

- potential waste disposal methods
- the advantages of these methods
- the disadvantages of these methods

**Student B:** You are a scientist. Talk to Student A about a new factory's options for getting rid of waste.

## Writing

**9 Use the textbook passage and the conversation from Task 8 to write a memorandum to the owner of a new factory. Include: information about potential waste-disposal methods, their pros and cons, and your recommendation.**



sanitary landfill



hazardous