



PLASTIC PLANET

WARM UP

Discuss these questions with a partner.

1. What do you think are some of the most important environmental issues today?
2. What are some things that your community is doing to help the environment?

Plastic bags are one of the biggest sources of trash in the ocean.

BEFORE YOU READ

UNDERSTANDING
CHARTS AND
GRAPHS

Review this reading skill in Unit 5A

- A. Look at the infographics. Then answer the questions below with a partner.
1. What are some uses of plastic? What proportion of global plastic production is used for packaging?
 2. Approximately how many tons of plastic were produced in 2015?
 3. On average, how long are plastics in building and construction used before they are thrown away? How about for packaging?

- PREDICTING B. What kinds of problems do you think plastic waste (garbage) causes for the world's oceans? Note your ideas. Then check as you read the passage on page 148.
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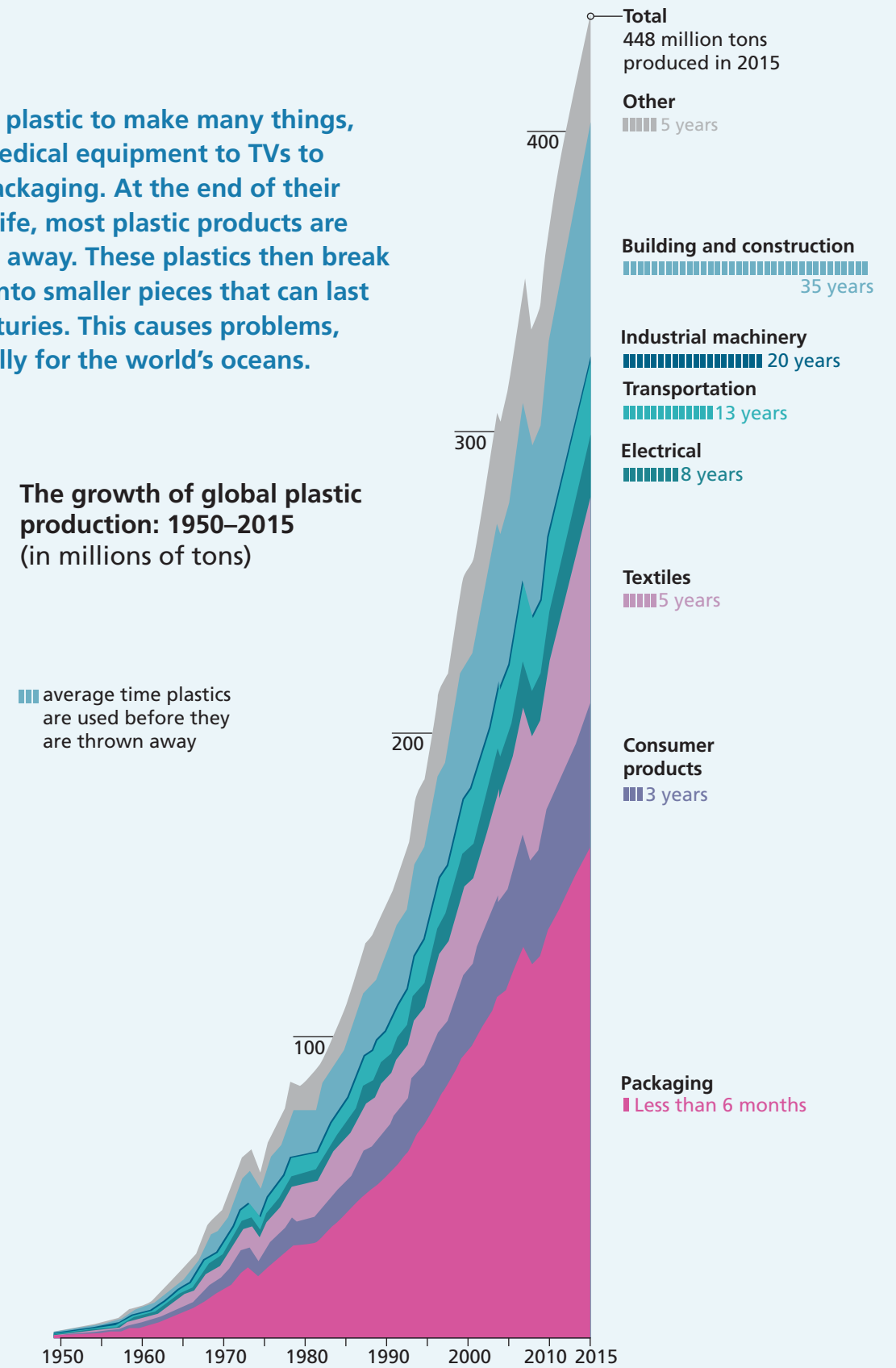
Almost 40 percent of plastic produced is for packaging (to cover goods). Some of this is recycled, but most is used just once and thrown away.



NGM STAFF. SOURCE: ROLAND GEYER, UNIVERSITY OF CALIFORNIA, SANTA BARBARA

We use plastic to make many things, from medical equipment to TVs to food packaging. At the end of their useful life, most plastic products are thrown away. These plastics then break down into smaller pieces that can last for centuries. This causes problems, especially for the world's oceans.

The growth of global plastic production: 1950–2015
(in millions of tons)



JASON TREAT AND RYAN T. WILLIAMS, NGM STAFF. SOURCE: ROLAND GEYER, UNIVERSITY OF CALIFORNIA, SANTA BARBARA

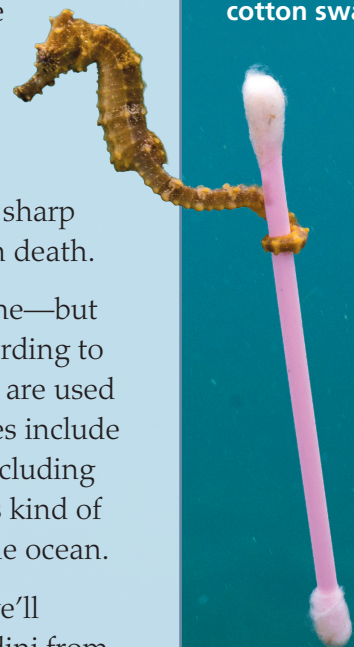
THE PROBLEM WITH PLASTIC

- A On a boat near Costa Rica, a team of marine biologists¹ is helping a turtle. The animal is having trouble breathing, and the team discovers why—there is something inside its nose. A scientist tries to **extract** the object, but the turtle cries in pain. Finally, after eight long minutes, a long object is pulled out: It is a 10-centimeter plastic straw.
- B The video of the turtle’s **rescue** has been viewed millions of times on YouTube. It has helped raise awareness of a growing problem: The world’s seas are full of plastic. Since 2000, there has been a **huge** increase in worldwide plastic production, but we **recycle** less than one-fifth of it. A lot of this plastic waste ends up in the ocean. Today, scientists think about 8.1 billion kilograms goes into the sea every year from coastal regions. Most of this plastic will never biodegrade.²
- C This ocean plastic hurts millions of sea animals every year. Some fish eat plastic because it is covered with sea plants, and it looks and smells like food. **Typically**, eating plastic leads to **constant** hunger. “Imagine you ate lunch and then just felt **weak** ... and hungry all day,” says marine biologist Matthew Savoca. “That would be very **confusing**.” In some cases, eating sharp pieces of plastic can seriously hurt sea animals and even result in death.
- D Plastic is useful to people because it is strong and lasts a long time—but this is bad news for sea creatures who eat or get stuck in it. According to Savoca, “Single-use plastics are the worst.” These are items that are used only once before we throw them away. Some **common** examples include straws, water bottles, and plastic bags. About 700 sea species (including the turtle from the video) have been caught in or have eaten this kind of plastic. Luckily, the turtle survived and was released back into the ocean.
- E How will plastic affect sea animals in the **long term**? “I think we’ll know the answers in 5 to 10 years’ time,” says Debra Lee Magadini from Columbia University. But by then, another 25 million tons of plastic will already be in the ocean.

¹ A **marine biologist** is a scientist who studies sea life.

² If something **biodegrades**, it breaks into little pieces and goes away completely.

✓ A seahorse clutches a plastic cotton swab.



READING COMPREHENSION

A. Choose the best answer for each question.

- GIST** 1. What could be another title for this reading?
 a. The Work of Marine Biologists
 b. Dangers Facing Sea Turtles
 c. How Plastic Harms Sea Creatures
- DETAIL** 2. Which of these questions is NOT answered in paragraph A?
 a. What was the cause of the turtle’s pain?
 b. What tools did the scientists use to remove the object?
 c. Where did the incident take place?
- REFERENCE** 3. What does *It* refer to in the second sentence of paragraph B?
 a. the video
 b. the turtle
 c. YouTube
- INFERENCE** 4. Which of the following objects is a single-use item?
 a. a plastic toothbrush
 b. a plastic fork
 c. a plastic comb
- INFERENCE** 5. Which of these can we definitely say about ocean plastic?
 a. 8.1 billion kilograms of plastic waste goes into the sea every year from coastal regions.
 b. The plastic waste in the ocean hurts sea animals and can even kill them.
 c. Scientists will have a clear understanding of the ocean’s plastic problem in 5 to 10 years’ time.



^ **Single-use plastics have become a major global concern. In 2018, Collins Dictionary named “single-use” as its Word of the Year.**

EVALUATING STATEMENTS

B. Are the following statements true or false according to the reading passage, or is the information not given? Circle T (true), F (false), or NG (not given).

- | | | | |
|---|---|---|----|
| 1. Many people have watched the video of the turtle on YouTube. | T | F | NG |
| 2. Most of the plastic in the ocean is biodegradable. | T | F | NG |
| 3. Matthew Savoca was a member of the team that found the turtle. | T | F | NG |
| 4. The turtle in the video died from its injuries. | T | F | NG |
| 5. Half the world’s plastics are made in Asia. | T | F | NG |

Understanding a Writer's Use of Quotes

A writer may choose to include the exact words from a source. These are set off by quotation marks (" "). Quotes can be used for various reasons, such as the following:

- To add a supporting statement or question:
Locals aren't waiting for the government to solve the plastic problem. "It's important for us to start cleaning up the oceans ourselves," said one resident.
- To provide expert evidence for an argument:
The plastic in our oceans will not go away by itself. "We see plastic dating back to the 1960s and 1970s," says Boyan Slat, CEO of the nonprofit group Ocean Cleanup.
- To highlight an interesting or memorable phrase:
"Ghost nets" are fishing nets (usually made of plastic) that have been left or lost in the ocean. Every year, they trap and kill millions of sea animals.

SCANNING A. Look back at Reading A. Underline the quotes. Discuss with a partner: Why did the writer include them?

IDENTIFYING PURPOSE B. Match each of these quotes (1–4) with its purpose. Write a, b, or c. One option is used twice.

- a. to add a supporting statement or question
- b. to provide expert evidence for an argument
- c. to highlight an interesting or memorable phrase

- ___ 1. The problem of plastics in our oceans is bigger than most people realize. "What's floating on the surface ... is only 3 percent of the plastics that enters the ocean every single year," says Eben Schwartz from the California Coastal Commission.
- ___ 2. It's important that everyone uses less plastic. "My class recently decided to stop using plastic straws," says 12-year-old Molly Peterson.
- ___ 3. The Great Pacific Garbage Patch is a collection of floating trash that covers a huge area of the North Pacific Ocean. However, it's more "plastic soup" than patch.
- ___ 4. Ocean plastic is a big problem for people who rely on fish and seafood for their diets. "How can we be sure that the fish we catch or buy is safe to eat?" asks local resident Mayumi Fujikawa.

CRITICAL THINKING *Inferring Effects* Reading A looks at how plastic in the ocean affects sea animals. In what ways does this ocean plastic affect humans? Discuss with a partner and note your ideas.

COMPLETION A. Complete the paragraph with words from the box.

common huge recycle rescue

The Owl ¹_____ Centre is a nonprofit organization in South Africa that is dedicated to the protection of owls. It has also been doing incredible work for the environment. In 2018, the center started a project to collect used plastic bottles and ²_____ them into owl houses. Plastic bottles are an increasingly ³_____ sight in our rivers and oceans. By reusing these plastic bottles, the center can build more nesting boxes for owls and also ensure that less plastic ends up in the ocean. The project has been a ⁴_____ success, and the center is now raising money to buy a ship that will collect plastic directly from the ocean.



▲ An owl house made from recycled plastic

WORDS IN CONTEXT B. Complete the sentences. Circle the correct words.

1. If you **extract** something, you *buy it / take it out*.
2. You use **typically** to refer to what *usually happens / once happened* in a situation.
3. If someone is **weak**, they are not very *strong / intelligent*.
4. Something that is **confusing** is *easy / difficult* for people to understand.
5. You use **constant** to describe something that happens *some of / all* the time.
6. Something that happens over the **long term** will *happen very soon / continue far into the future*.

WORD PARTS C. The prefix **ex-** means "out" or "out of" (e.g., **extract**). Complete the sentences using the words in the box. One word is extra.

except exit extend extract

1. "Ghost nets" are a serious problem along Australia's northern coastline; they can _____ for more than several hundred meters in length.
2. The store is open every day _____ Sunday.
3. Boyan Slat's foundation, Ocean Cleanup, is developing various technologies that can _____ plastic waste from our oceans.

BEFORE YOU READ

- DISCUSSION** A. Read the caption below and look at the photo. What plastic items do you see in this photo? Are any of them single-use items? Discuss with a partner.
- PREDICTING** B. How can you use less plastic in your day-to-day life? Note some ideas. Then read the passage and check if any of your ideas are mentioned.
- _____
- _____

✓ Plastic garbage collected from a beach in North East England, U.K.



FIVE TIPS FOR USING LESS PLASTIC

A The world has a plastic problem—and it is increasing. Scientists are working to find a long-term solution by making plastic more biodegradable. But in the meantime, here are five things you can do to **reduce** plastic waste now.

✓ A reusable shopping bag



B **1. Quit using plastic bags.** Instead, take your own reusable shopping bag to the store. People use a trillion¹ plastic bags worldwide every year. Roughly 10 percent are used in the United States alone. That's almost one bag per American per day. In contrast, the average Dane uses four single-use bags *per year*. In 1993, Denmark was the first country to place a **tax** on plastic bags. Today, other countries (such as Chile, Kenya, Indonesia, Germany, and New Zealand) either make **customers** pay for plastic bags, or have **banned** them completely.

C **2. Skip the straw.** Today, around 8.3 billion plastic straws **pollute** the world's beaches. So when you order a drink, say *no* to the straw, or bring your own reusable one. In 2018, Seattle became the first major U.S. city to ban plastic straws, and many other cities are set to follow its example.

✗ A metal, reusable straw



D **3. Don't use plastic bottles.** Buy a reusable bottle and fill it with any type of beverage you like. Some cities, like Bundanoon in Australia and San Francisco in the U.S., have completely or partially banned bottled water. **Globally**, however, people still buy nearly a million plastic bottles every minute.

✓ A reusable bottle



E **4. Avoid plastic packaging.** Buy bar soap instead of liquid soap in plastic **containers**. Don't buy fruit or vegetables in plastic packaging. In the United Kingdom, leaders are calling for² supermarkets to have plastic-free areas. They also want to tax plastic take-out containers.

F **5. Recycle.** We can't recycle all plastic items, but it is possible to recycle most bottles and milk or juice cartons. Today, Norway recycles 97 percent of its plastic bottles. How? Machines at most supermarkets take the bottles and give a **refund** of up to 2.5 kroner (32 cents) per bottle.

¹ 1 trillion = 1,000,000,000,000 or 1,000 billion

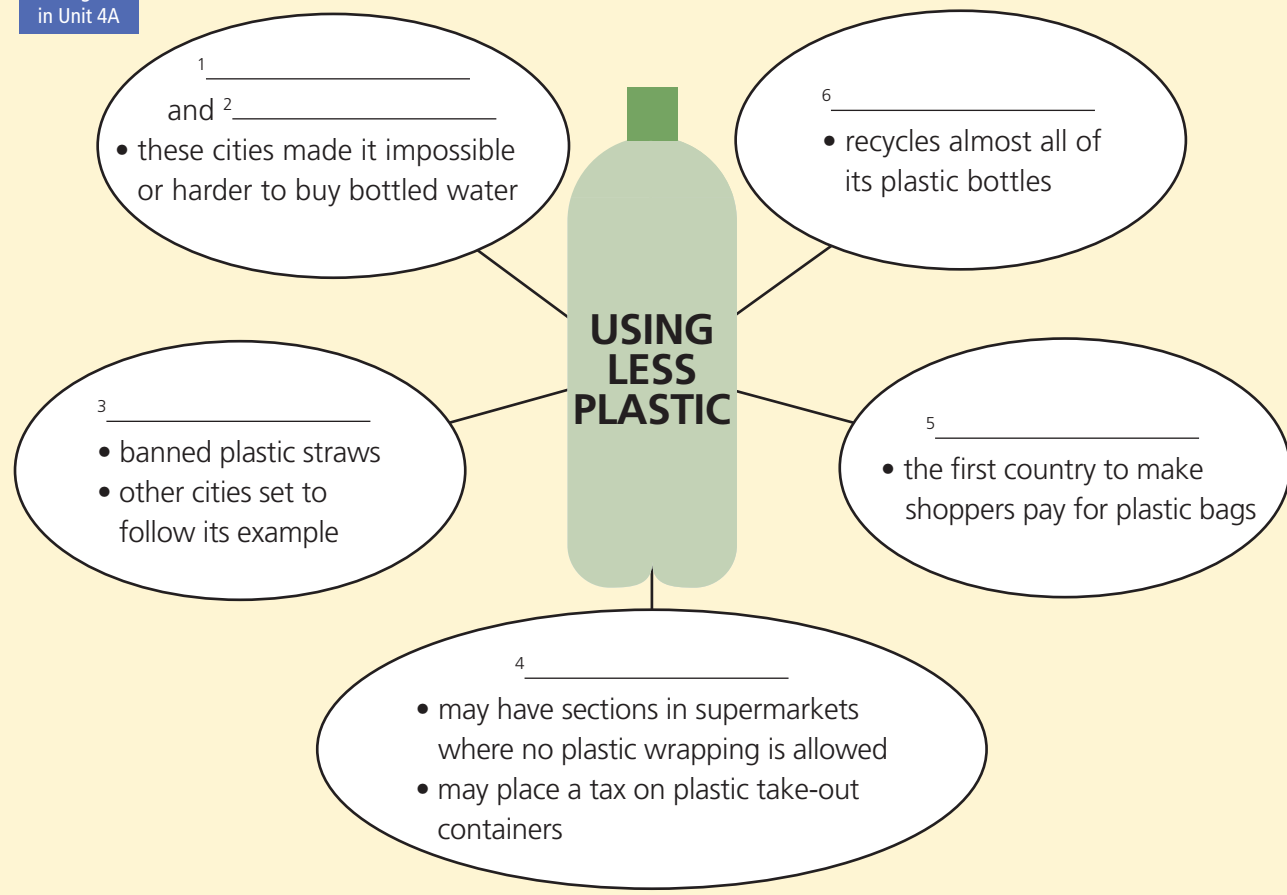
² If you **call for** something to happen, you make a strong request for it to happen.

A. Choose the best answer for each question.

- GIST** 1. This passage generally consists of _____.
 a. suggestions b. reasons c. predictions
- DETAIL** 2. How many plastic bags are used in the United States every year?
 a. about 10 billion b. about 100 billion c. a trillion
- VOCABULARY** 3. In paragraph B, what does *average* mean?
 a. typical or usual b. smart or intelligent c. responsible or careful
- DETAIL** 4. According to the passage, which of the following should we NOT do?
 a. buy a reusable bag b. get a metal straw c. use liquid soap
- REFERENCE** 5. What does *They* refer to in the last sentence of paragraph E?
 a. plastic-free areas b. supermarkets c. U.K. leaders

SUMMARIZING **B. Complete the concept map with the correct city or country names from the passage.**

Review this reading skill in Unit 4A



Finding Meaning (3)—Using Context

When you come across an unfamiliar word, first see if it is defined within the text or in a glossary (see Unit 7B Reading Skill). If it is not, you can check its meaning in a dictionary, or look at the context—the words and sentences around it—to guess its meaning. To guess the meaning of a word from context, first identify the word’s part of speech (noun, verb, etc.). Then look to see if there are synonyms, antonyms, or examples in the sentence or the sentences before and after it that can help you determine its meaning.

- SCANNING** **A. Look back at Reading B. Find and underline the words in bold below (1–5).**
- WORDS IN CONTEXT** **B. Now look at the context around each of the words in the passage. Choose the option that is closest in meaning to each word.**

- 1. **roughly** (paragraph B)
 a. only b. unfortunately c. approximately
- 2. **skip** (paragraph C)
 a. share b. reuse c. stop using
- 3. **beverage** (paragraph D)
 a. food b. drink c. bottle
- 4. **partially** (paragraph D)
 a. in part b. totally c. easily
- 5. **cartons** (paragraph F)
 a. straws b. containers c. bags

CRITICAL THINKING Ranking Suggestions

Rank the five tips 1–5 (1 = easiest to do; 5 = hardest to do). Then compare answers with a partner and give reasons for your answers.

- ___ Quit using plastic bags.
- ___ Skip the straw.
- ___ Recycle.
- ___ Avoid plastic packaging.
- ___ Don’t use plastic bottles.



A worker sorts plastic bottles at a recycling center in Wuhan, China. >

COMPLETION A. Complete the information with words from the box.

containers customers globally reduce tax

The small nation of Wales has been working to ¹ _____ plastic waste for years. In 2011, the government introduced a law requiring all supermarkets and large stores to charge a small fee for every single-use plastic bag used. By 2015, plastic bag use had fallen by 71 percent. This fee is not a ² _____. The money raised goes to environmental projects, not to the government. Plastic bottles are also collected, and then reused or melted into new items. Furthermore, there are some shops in Wales that sell only plastic-free products. ³ _____ can bring their own ⁴ _____ and fill them with the items they buy.

In 2017, Wales ranked second ⁵ _____ (just behind Germany) for recycling household waste, including household plastic. The country is now looking at ways to further improve its recycling systems, and may even become the world leader for recycling in the near future.

DEFINITIONS B. Complete the definitions below with words from the box.

avoid bans pollute quit refund

1. If you _____ an activity, you stop doing it.
2. If a government _____ something (e.g., a movie or product), it must not be shown or used.
3. When you _____ water, air, or land, you make it dirty and dangerous to live in or to use.
4. If you _____ a person or thing, you stay away from them.
5. A(n) _____ is a sum of money that is returned to you.

COLLOCATIONS C. The words in the box are often used with the word **global**. Complete the sentences with the correct words from the box. One word is extra.

awareness brand problem warming

1. Research shows that many plastics give off greenhouse gases as they break down, contributing to global _____.
2. Air pollution is a serious global _____.
3. The campaign helped raise global _____ of environmental issues.



OUR PLASTIC WORLD



Streetside trash at Brick Lane Market, London

BEFORE YOU WATCH

PREVIEWING A. Read the information. The words in **bold** appear in the video. Match these words with their definitions below.

Few of us can go a day without using something made of plastic. Most modern plastics are **synthetic**, and are made from fossil fuels. These synthetic plastics are useful because they are easy to shape and can last a long time. However, they take several hundred years to biodegrade, which can be bad for the environment. If people throw plastic items on the ground or into rivers, they can end up in the sea. This has a terrible **impact** on sea animals and can eventually **ruin** our oceans. Scientists are now working to find nonsynthetic **alternatives**—called bioplastics—that can help reduce plastic pollution.

- | | | |
|----------------|---|-----------------------------------|
| 1. synthetic | • | • a. option; other possibility |
| 2. impact | • | • b. not natural; man-made |
| 3. ruin | • | • c. a strong or powerful effect |
| 4. alternative | • | • d. to harm or destroy something |

DISCUSSION B. Work with a partner. Make a list of the objects around you that are made of plastic. How many plastic things do you use in a day? What do you do with them after using them?

