

Name: _____

Class: _____

The Plastic Problem

By Jacqueline Pratt-Tuke
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Plastics are a part of everyday life, but they can cause problems for the planet. In this text, Jacqueline Pratt-Tuke shares the problems with plastics. As you read, take notes on the author's point of view about plastics.

- [1] I grab the last few strawberries from the fridge and cut them for breakfast, tossing them in a bowl and tossing their plastic container in the trash. I pull two slices of bread from a plastic bag, heat them in the toaster, and then load the browned bread with peanut butter scooped from a plastic jar. Next, I pour a cup of orange juice from its plastic Tropicana container to wash down the thick, sticky peanut butter.

Pause and count. How many plastics did you use as you got ready for school today?

Plastic products are so convenient. Use them, toss them, and forget about them.



"Plastic pollution and juvenile fish" by Naja Bertolt Jensen is licensed under CC0.

BUT, SHOULD WE FORGET ABOUT PLASTICS?

Plastics are not biodegradable, meaning they do not decompose.¹ Instead, they break into ever-tinier pieces — each less than five millimeters long — called microplastics. The Environmental Protection Agency (EPA) reports “every bit of plastic ever made still exists.” So in fifty years, your morning strawberry container will still be around as a handful of sesame seed-sized fragments² of plastic.

- [5] Because plastics do not break down, they accumulate³ in landfills, and many end up in the Earth's oceans. About 8.8 million tons of plastics are dumped in the ocean every year, according to *National Geographic*. This is comparable⁴ to a garbage truck dumping a load full of debris⁵ into the sea every minute. And scientists predict⁶ the number of plastics swimming in the seas will grow — two garbage truckloads per minute by 2030 and four

1. to break down into smaller parts
2. **Fragment (noun)** a small part broken or separated from something
3. to gather an increasing number of something
4. similar to; alike
5. trash; garbage; junk
6. **Predict (verb)** to tell in advance that something will happen

per minute by 2050.

In the Pacific Ocean, the Great Pacific Garbage Patch is a spinning vortex⁷ of plastics and debris, like a junkyard in the ocean. The Great Pacific Garbage Patch is twice the size of Texas, and the swirling mass of trash can be seen from outer space.

As plastics accumulate in Earth's oceans, marine⁸ creatures feel the consequences. Fish, seabirds, turtles, and marine mammals mistakenly eat plastics or get tangled in plastic products like nets, bags, and soda rings. Both consuming⁹ plastics and entanglement can cause injury or death. According to the United Nations, marine debris — 80% of this debris coming from plastics — affects at least 800 species¹⁰ worldwide.

Researchers estimate that half of all sea turtles have eaten plastic. Loggerhead turtles eat plastic bags thinking they are jellyfish. Green turtles consume smaller plastic bits hidden in algae. A study led by the University of Tokyo found that loggerhead turtles ate 17% of plastics they came across in the ocean, and green turtles ate 62%. Plastics fill turtles' bellies and cause starvation¹¹ as they mistakenly believe they ate enough to satisfy their hunger.

Plastics also kill up to a million seabirds each year, including the Laysan Albatross. With a wingspan of over six feet, the large seabird flies over oceans and skims its beak across the top of the water to catch fish. As it catches fish, the bird accidentally¹² collects plastics. When consumed, plastics' sharp edges can pierce internal organs, causing injury and death. Like turtles, seabirds can consume so many plastics that they have little room left for food. According to *National Geographic*, in 1960, scientists found plastics in the stomachs of only 5% of seabirds, but as humans' consumption of plastics rose, so did the amount found in birds' stomachs. By 1980, 80% of seabirds carried plastics in their bellies.

WHAT CAN BE DONE TO SOLVE THE PLASTIC PROBLEM?

- [10] Although there is not a simple answer, scientists and environmentalists are developing new ideas to address the plastic problem. Some scientists are working on developing biodegradable replacements for plastics. A group of researchers from Harvard created a plastic-like substance made from shrimp shells. In Indonesia, a company replaced plastic bags and soap wrappers with packaging made from seaweed.

Instead of engineering plastic replacements, others are taking on the collection of plastics in landfills and oceans. Microbiologists from Pakistan tried using mushroom enzymes to break down plastics in garbage dumps more quickly. Engineers in the Netherlands developed a nearly 2,000-foot long ocean garbage truck, which travels the waters and collects plastics. Known as System 001, this ocean trash collector is heading to the Great Pacific Garbage Patch for some cleanup. A nonprofit organization called The Plastic Bank pays community members for plastics that they collect. By incentivizing plastic pick-ups, The Plastic Bank prevents these

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- 7. a mass of whirling matter
 - 8. **Marine** (*adjective*) having to do with the sea; living in the sea
 - 9. **Consume** (*verb*) to eat or drink
 - 10. **Species** (*noun*) a group or type of alike living things
 - 11. to die or suffer from not eating and drinking
 - 12. **Accidentally** (*adjective*) without planning

materials from ending up in the ocean and recycles the collected plastics into new products.

Environmentalists also recommend that citizens can take action to decrease their consumption of ever-convenient plastics. Environmentalists urge citizens to reduce their use of single-use plastics, plastics used once and then tossed. For example, people can invest¹³ in a water bottle rather than drinking water from plastic bottles or use reusable grocery bags rather than plastic ones. Worldwide, 73% of beach litter comes from single-use plastics, like plastic straws, cups, bags, and utensils, reports *National Geographic*.

Secondly, environmentalists encourage individuals to recycle plastics. In the United States, only 9% of all plastics are recycled, meaning the vast majority of plastics end up in landfills. Recycled plastics can be repurposed into new products — suitcases, furniture, new bottles, laundry detergent, and much more. But it is important to sort recyclables from trash carefully. Tom Szaky, CEO of a recycling company, said, “Typically, 50% of what you put in your recycling bin is never recycled. It's sorted and thrown out. This is partly due to user error, a common problem which occurs when people place unrecyclable materials into recycling bins.”

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13. to spend money to gain a future benefit

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. What is the main idea of the text?
 - A. No one but scientists knows how to fix the problem with single-use plastics.
 - B. Plastics are very easy to use but cause a lot of harm to the environment.
 - C. There are better ways to make plastic than the way we make it now.
 - D. Everyone should use plastics because they are so convenient.

2. How does the author introduce the topic of the article?
 - A. by showing how people can make a difference by not using plastic
 - B. by giving a real life example of how people use single-use plastics
 - C. by telling how scientists use less plastic than other people
 - D. by describing why using plastic to store food is bad

3. Why is the Great Pacific Garbage Patch a problem for sea animals?
 - A. People who try to clean up the Great Pacific Garbage Patch often hurt the sea animals' homes by accident.
 - B. When sea animals eat plastic from the Great Pacific Garbage Patch they can get very sick and die.
 - C. The Great Pacific Garbage Patch sucks sea animals inside of it so they cannot get out.
 - D. The Great Pacific Garbage Patch is so big that it can be seen from outer space.

4. In paragraph 8, the word "estimate" means that researchers —
 - A. know how many sea turtles have eaten plastic.
 - B. guess how many sea turtles have eaten plastic.
 - C. want to find out which sea turtles have eaten plastic.
 - D. think they know which sea turtles have eaten plastic.

5. What is the author's point of view about plastics?

Name _____

Word Study

Final Stable Syllables *-le, -tion, -sion*

Final stable syllables always appear at the end of words.

- A final syllable that ends in *-le* has a consonant and the letters *le*, as in the words *double*, *subtle*, and *icicle*.
- Some words contain the final stable endings *-tion* and *-sion*. They are pronounced *shun* or *zhun*, as in the words *aviation* and *precision*.

My TURN Read the following words. Then rewrite the words and circle the final stable syllable in each word.

1. creation _____

2. trouble _____

3. vision _____

4. option _____

My TURN Add the final stable syllable *-tion* or *-sion* to the following words to create a new word.

1. navigate _____

2. exclude _____

3. act _____

4. concentrate _____

TURN and TALK With a partner, use each word above in a sentence. Consult a reference to check that all of your words are spelled correctly.

Name _____

Spelling

Spell Words with Final Stable Syllables *-le*, *-tion*, *-sion*

Final stable syllables always appear at the end of words.

- A final syllable that ends in *-le* has a consonant and letters *le*.
- The final stable endings *-tion* and *-sion* are pronounced “shun” or “zhun.”

SPELLING WORDS

observation
collide
scuffle
extension
situate

article
declaration
invade
untangle
assemble

observe
situation
collision
declare
occupy

ripple
invasion
occupation
extend
particle

My TURN Add or remove the final stable syllable to create new words. Use what you know about final stable syllables to spell correctly.

1. observation _____
2. declaration _____
3. extension _____
4. occupy _____
5. collide _____
6. invade _____

My TURN Choose three of the following words and use them in sentences.

scuffle
article

untangle
assemble

ripple
particle