

Journey of a Plastic Bottle

Travel thousands of miles with a plastic drinking bottle to learn about plastic pollution and understand how it harms the ocean. Follow the journey of a plastic bottle in this [StoryMap](#).

Story Point #1: Chengdu, China

Our bottle begins its journey in Chengdu, China, the capital of Sichuan Province, which is home to more than 14 million residents. Sichuan Province is famous for the giant pandas that live in its bamboo forest preserves.

Plastic beverage bottles are some of the most common pieces of plastic found on beaches worldwide. These soda and water bottles can end up damaging the environment for hundreds of years because plastics may never fully biodegrade.

So, why was this bottle not recycled? As it turns out, only about nine percent of plastics ever created ends up in the recycling bin, with the rest making their way into landfills or the natural environment. In some countries, trash is much less likely to make it to the landfill—for example, China creates more than 31 million kilograms (68 million pounds) of plastic trash each day. Approximately 74 percent of that is mismanaged, meaning it is either littered or otherwise improperly thrown away. This means that millions of plastic bottles, bags, and food containers end up littered on the ground and then swept into storm drains after heavy rains.

Plan your skit!

- Select one key statistic from your Story Point to illustrate with a visual display and explanation.
- Decide on the following roles in each group:
 - Each group should have two narrators who share narrating duties.
 - Each group must have one actor to play a piece of plastic. This person will also explain the data visualization.
 - Each group should also have one other member acting out roles such as water, wind, or marine organisms.

Group Member	Role in Skit	Actions
	Narrator 1	
	Narrator 2	
	Piece of Plastic/Data Explainer	
	Other Roles (specify)	

Story Point #2: Yangtze River, China

Instead of being treated at a wastewater facility, the water that flows through storm drains in China flows directly into local streams, rivers, and lakes. From there, the bottle washes into the Jinjiang River, which flows through the heart of Chengdu. Eventually, the Jinjiang and its debris drifts into the Yangtze River. At a length of 6,300 kilometers (3,915 miles), the Yangtze River is the longest river in Asia and the third-longest in the world. About a third of China’s population, or about 400 million people, lives in the Yangtze River basin.

The Yangtze River is home to a variety of unique animals, including the Yangtze finless porpoise, a critically endangered species that is one of the few remaining freshwater porpoise species. The basin also hosts the largest salamander in the world and the critically endangered Siberian crane. Unfortunately, the Yangtze has become increasingly polluted. Fertilizer from farms and sewage from nearby towns have added to the problem.

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Story Point #3: Chongming Island, China

As the Yangtze River winds through China, it passes major urban areas such as Wuhan and Chongqing, collecting more plastic trash. The mouth of the Yangtze River flows past Shanghai and dumps 1.5 million metric tons (1.65 million U.S. tons) of plastic debris into the Yellow Sea each year.

Rivers send between 1.15 and 2.41 million metric tons (1.27 and 2.66 million U.S. tons) of plastic waste into the ocean each year. About 86 percent of that comes from Asian rivers, such as the Yangtze in China and the Ganges in India. The Yangtze River deposits more plastics into the ocean than any other river in the world.

In 2016, two ships tossed more than 100 metric tons (110 U.S. tons) of waste into the Yangtze River. Much of the rubbish washed onto Chongming Island, an island at the mouth of the river. The trash included medical waste such as needles, as well as cans, clothing, and broken bottles.

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Story Point #4: East China Sea

The bottle has now entered the East China Sea, an arm of the Pacific Ocean. Many fishermen depend on the East China Sea for catching mackerel, herring, shrimp, and shellfish, among other fish.

Our bottle may still be bobbing along the surface, but it could also be broken into fragments by now. Plastics are not biodegradable—instead, they break down into tinier and tinier pieces. Microplastics, or plastics smaller than 5 millimeters (0.2 inches) long, have been found all over the world, in the stomachs of fish we eat and even the salt we sprinkle onto our food. Fish may even seek out microplastics, mistaking their scent for a tasty treat. Plastics can block animals' digestive tracts, making them feel full and eat less than they need to survive.

Since entering the East China Sea, the soda bottle has officially become marine debris. Ocean currents can now carry it thousands of miles across the world.

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Story Point #5: The Great Pacific Garbage Patch

By now, the currents have carried our bottle across the ocean and it may have ended up in the Great Pacific Garbage Patch. The Great Pacific Garbage Patch is one of Earth’s five major subtropical gyres, or rotating ocean currents that can trap trash at their centers. The circular motion of the gyre draws in more and more debris. The patch is not stationary; instead, it moves and changes shape and size, depending on ocean currents and winds.

The Great Pacific Garbage Patch is about three times the size of France and is located in the North Pacific, between Japan and North America. Despite the name, it is not a giant floating trash island, but rather more of a cloudy, plastic soup, where small pieces of plastic float in the water. Larger items like fishing nets are often mixed into the soup. Discarded plastic fishing nets—known as ghost nets, because they continue to catch and kill marine life—entangle animals like turtles and seals. Ghost nets make up 46 percent of the mass in the Great Pacific Garbage Patch.

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Story Point #6: Midway Atoll

Midway Atoll, located in the Pacific Ocean, northwest of the U.S. state of Hawaii, was the site of a major naval battle between the United States and Japan in World War II. Now, it is part of the Papahānaumokuākea Marine National Monument, a sprawling conservation area that provides habitats for millions of nesting birds, including albatrosses. At 2,100 kilometers (1,300 miles) away from the nearest city, you would not think that garbage could reach a far-flung island like Midway. And yet, it does. Each year, fishing nets, toothbrushes, foam buoys, plastic bottles, and other trash land on the beaches and reefs of Midway Atoll and other remote islands in the Papahānaumokuākea Marine National Monument.

This is where our bottle's journey ends. Midway Atoll and other islands in the Papahānaumokuākea Marine National Monument act like a comb and catch trash from the Great Pacific Garbage Patch. Since 1996, a marine debris team has removed a total of 0.848 million kilograms (1.87 million pounds) of ocean garbage from the reefs and shores in the Papahānaumokuākea Marine National Monument. But the plastics keep piling up.

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