



It's Everywhere!



Millions of things are made from plastic. Whether used to make toys, trains, or toothbrushes, plastic is everywhere. Plastic was invented in England in 1856.

Since then, there have been many changes in how companies make, or **manufacture** plastics. Today, most plastics are made from **petroleum**, or oil that is dug up from deep underground. Plastics can be soft or hard, and formed into just about anything. Hard plastics make things like bottles, computers and furniture, while soft plastics make things like plastic bags.

Helpful Plastics



Plastic can be very helpful! Hospitals use plastic to keep surfaces free of germs, and doctors use plastic during operations. Using plastic to build airplanes and cars makes them lighter, so they use less gasoline, or **fossil fuel**. Plastic is also used for strong, lightweight packaging for many things like water, food, toys, cell phones, building materials and clothing. Plastic is cheap, waterproof, and lasts a very long time.

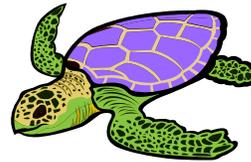
The Plastic Bottle



Before plastic bottles were invented, liquids like milk, shampoo, and medicine were stored in glass bottles. These bottles could break, and were heavy to **transport** or move from one place to another. Then, in 1947 the plastic spray bottle was invented, and started

being widely used. In the 1970's, a new plastic was developed that could be used to make plastic soda bottles, and that changed everything! Within a few years, plastic bottles also held other drinks or **beverages** like milk, water and juice. After that, the plastic bottle became a very popular item for people around the world. Today, more than 50 billion (50,000,000,000) plastic beverage bottles are used every year! Most of those bottles are used only once before they are thrown away or recycled.

Plastic Pollution Hurts Nature



Although plastic items like bottles and bags are very easy, or **convenient**, to use, they come with problems. That's because plastic can damage nature and the environment. When plastic ends up as litter in the ocean, it can catch, or **entangle**, animals like sea turtles, seals and dolphins, which can kill them. Also, when plastic breaks down into smaller pieces or **particles**, it looks like food and gets eaten by fish and sea birds. More than one million animals die every year by eating or getting tangled in plastic trash.

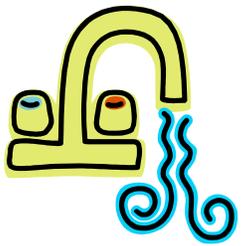
Plastic Hurts our Health



Another problem with plastic is that most of it is made from unhealthy **chemicals** or ingredients. These harmful or **toxic** chemicals are used to keep plastics soft and flexible and are also used to mold plastics into

shapes—like bottles. When we drink beverages or eat food from plastic containers, we sometimes end up eating or **ingesting** small amounts of these chemicals along with our meal! This is especially true if we heat plastic wrapped food in a microwave oven, or pour hot water into plastic bottles. That's because the heat "cooks" the plastic and releases, or **leaches**, toxic chemicals from the plastic into the food or drink! While occasionally using plastic bottles and food containers is okay, it's better to use less plastic whenever possible and use containers or bottles made from paper, steel or glass.

San Francisco Tap Water



We all need to drink fresh water to be healthy. In the 1990's plastic bottled water became popular. Although bottled water is very expensive compared to **tap water** from the faucet, many people believe that drinking water from plastic bottles is healthier than tap water. While this may be true for some places that have **polluted** or dirty water, it is not true in San Francisco. That's because San Francisco has some of the purest drinking water in the United States! This water comes all the way from the **Sierra Nevada Mountains** where it was once pure snow. The snow melts, runs into the **Tuolumne River**, and gets stored in the **Hetch Hetchy Reservoir** before it gets delivered to our homes, schools and businesses. San Francisco's tap water is so clean, that it doesn't even need to be filtered. City officials work very hard to **monitor** or check the water to make sure it does not contain any harmful **contaminants** or pollution. Each

year, more than 120,000 samples are collected from reservoirs and pipelines. These water samples get tested to make sure the tap water delivered to our homes is clean and safe.

Plastic Bottled Water



Although many people think drinking water bought in plastic bottles is safer than drinking San Francisco tap water, it is not true. That's because San Francisco's water is always tested for safety, and it doesn't contain any of those toxic chemicals leached from plastic bottles! The water you drink from a tap often goes through more water quality and safety testing than what you would buy to drink from a plastic bottle. As a matter of fact, many bottled water companies get their water from **municipal** or city water faucets. Then, they sell the exact same tap water at a much higher price. Bottled water typically costs about 300 times more than tap water!

Let's Be Smart About Plastic!



We all have the power to help protect nature, our health, and the environment. While plastic is everywhere, it's still possible to do our best to use less!

1. Try to stop using plastic water bottles. Instead, fill a reusable steel bottle from the tap or drinking fountain.
2. Never pour hot water into plastic, or heat plastic in the microwave.
3. Use reusable bags instead of plastic bags.
4. Recycle all hard plastic. In San Francisco, you can recycle all hard plastic into the blue bin at school and at home.



Pesky Plastic

Student Comprehension Questions

1. What are most plastics made from today?

2. What are two ways that plastic litter in the ocean can hurt animals?

3. Why shouldn't we pour hot water into plastic bottles?

4. Where do many bottled water companies get their water to put into plastic bottles?

5. How much more expensive is bottled water than tap water?

6. What other type of bottle--besides plastic--can we use to safely fill with tap water?

7. How do you feel about living in a city where tap water is so clean and easy to get? Why?



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The heat "cooks" the plastic and releases, or leaches, toxic chemicals from the plastic into the water.

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municipal or city taps

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Bottled water is 300 times more expensive than tap water.

6. What other type of bottle--besides plastic--can we use to safely fill with tap water?

stainless steel

7. How do you feel about living in a city where tap water is so clean and easy to get? Why?

(subjective answer)