

I CAN HELP!: REDUCING MY CARBON FOOTPRINT

GRADES 3-12

This activity was designed as a companion for the music video “Isle of Plastic.”

BACKGROUND

The Great Pacific Garbage Patch (GPGP) is a mass of accumulated trash in the Pacific Ocean, between California and Hawaii. The garbage patch was created by trash being carried by the North Pacific Subtropical Gyre, a circular ocean current formed by the Earth’s wind patterns and rotation. The circular motion draws in debris to the calm center of the gyre, trapping the debris there. Garbage accumulates, as much of it is not biodegradable; instead, it just breaks into smaller and smaller pieces. This is why the Great Pacific Garbage Patch is not viewable from space: many of the microplastics found in the patch can’t be seen by the naked eye. This also means it’s difficult to determine the true concentrated area of the plastics. Estimates range from 700,000 km² to 15,000,000 km² (http://www.ourmanly.com.au/Lifestyle/garbage_patch.aspx) with a weight of 3.5 million tons. There are five major subtropical oceanic gyres: the North and South Atlantic Subtropical Gyres, the North and South Pacific Subtropical Gyres, and the Indian Ocean Subtropical Gyre.

Plastic is a product derived from petroleum, a valuable, non-renewable resource. Plastic packaging offers both costs and benefits to the economy, our health, and the environment. While plastic is flexible, lightweight, convenient and cheap, it creates pollution, uses a high amount of energy in its production, and can migrate into food. Contrary to popular belief, plastic is not recycled into another similar product (e.g., a recycled Coke bottle doesn’t become a ‘new’ Coke bottle). The processing of used plastics costs more than making new plastic, which can often lead companies toward using new plastic. The following activity will help students quantify how much plastic they use, and think about ways to reduce that amount.

PART 1: PLASTIC JOURNAL

INSTRUCTIONS

1. Discuss with students that plastic derived from oil does not biodegrade—it only breaks down into smaller pieces, like those found in the Great Pacific Garbage Patch. So when they ‘recycle’ plastic, it’s actually being made into other plastic materials like clothing.
2. Using individual journals, have your students record what type and how much plastic they encounter in a one or two day period. Have them share with the class how much they plastic they interacted with.

3. If you have your students record exact numbers, tally the number of plastic bags they threw away, the number of plastic food wrappers, etc. This way, you can have a definitive number for just how much plastic waste your class alone produced in a short time frame!
4. You can also have your students break into groups to research different aspects of plastic and present to the class. Suggested topics include:
 - How plastics are made
 - Common plastics
 - Variety of products that use plastic (surprise the class!)
 - How much plastic the U.S. uses
 - Dangerous aspects of plastic (chemicals leaching, choking hazards, etc.)
 - How plastic recycling processes work

PART 2: QUANTIFYING AND REDUCING PLASTIC IN OUR DAILY LIVES

After the students have shared, encourage them to brainstorm ways that they can reduce plastic in their own lives. If they are struggling, here are a few ideas to get them thinking!

- Say no to plastic straws at restaurants. Drink straight from the glass instead!
- Stop buying plastic water bottles and switch to a reusable water bottle. Bisphenol A, or BPA, is an organic compound that is used commonly in plastics. Recently, researchers have questioned its use in plastics, due to its hormone-like qualities. When searching for a water bottle, make sure it's BPA-free. Better yet, opt for a stainless steel water bottle!
- Purchase reusable produce bags for your fresh fruit and vegetables, preferably made from cotton. Nylon and polyester bags are also made from plastic. Use cloth grocery bags rather than plastic or paper bags given out at the stores.
- Did you know gum has plastic in it? Ew! Take gum out of your diet to reduce ingesting plastic.
- Purchase laundry detergent and dish soap in boxes instead of plastic bottles. Cardboard can be recycled much easier than plastic.
- When buying food items like milk and orange juice, choose products that come in glass instead of plastic.
- Reuse glass and plastic containers as much as possible.
- Use matches instead of disposable plastic lighters.
- Instead of disposable plastic silverware, use your own utensils.
- Bring your own containers to restaurants to package up your leftovers