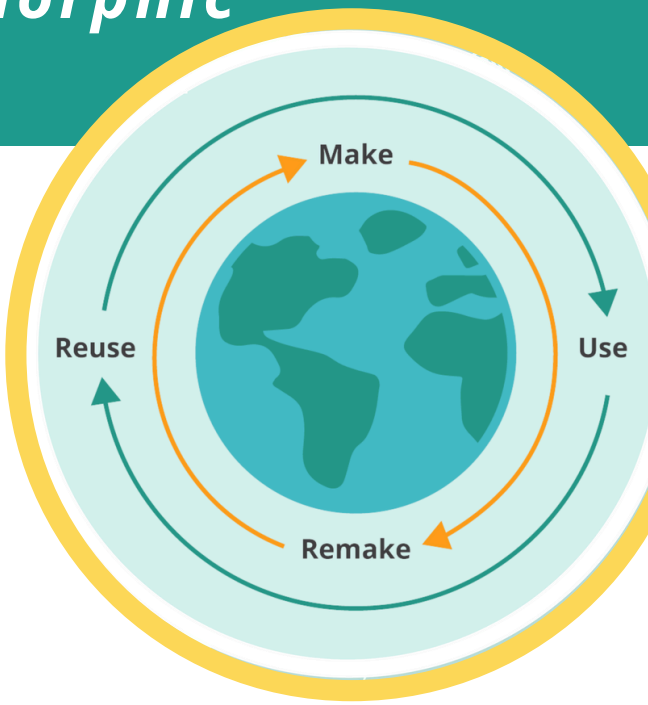
#Eco 360
Backgrounder
Grade Level: 9-12

Plastics and Anthropomorphic Climate Change



The pollution problem of plastic is obvious and most talked about. To date, 6.3 billion tons of plastic waste has been produced in the world, polluting marine environment, land and air. A high proportion of plastic waste is composed of single-use plastics which are discarded after one use, posing additional challenges of efficient land use due to the need for more and more landfills. However, there is also another consequence of plastic—exacerbating anthropomorphic climate change, i.e., climate change attributed to human activity that has led to an increase in greenhouse gas emissions in the earth's atmosphere.

Refer to GreenLearning's Decoding Carbon program activity below for more information:

http://www.greenlearning.ca/decodingcarbon/how-is-climate-change-shaping-this-world.php

Plastic is made from fossil fuel and fossil fuel extraction results in greenhouse gas emissions. Therefore, plastic production results in greenhouse gas emissions. Plastic is also incinerated in many parts of the world, adding to GHG emissions. Increased GHG emissions adds to climate change, with global earth temperatures continually rising. Scientists predict severe adverse environmental impacts of anthropomorphic climate change if the temperature of the earth rises beyond 1.5 degrees Celsius. In order to act together to limit temperature rise, 196 world countries came together in 2016 to sign on to the Paris Climate Agreement, which is a legally binding international treaty on combating climate change (UNFCCC, 2021). The main goal of the agreement is to limit global warming to well below 2 degrees Celsius, and preferably to 1.5 degrees Celsius, compared to pre-industrial levels (UNFCCC, 2021).

As plastic production and incineration results in GHG emissions, addressing plastic production is important to prevent an earth temperature rise beyond 1.5 degree Celsius. To date, almost 8.3 billion metric tons of non-recyclable plastic has been produced in the world (National Geographic Society, 2019). In 2019, it is estimated that the production and incineration of plastic produced more than 850 million metric tons of GHG emissions, which is equivalent to 185 500MW coal power plants (Center for International Environmental Law, 2019).

If plastic continues to be produced at given rates then by 2030 the GHG emissions from plastic production can reach almost 1.34 billion tons per year, and that is equivalent to emissions arising from constructing almost 295 new coal-fired power plants each generating 500MW of electricity (Center for International Environmental Law, 2019).

Therefore, climate action requires eliminating plastic pollution and more importantly, its production. Moving towards a circular economy for plastics will not only address plastic pollution but also help reach climate action goals.

For more reading on impacts of plastic industry on climate change, we highly recommend the following:

- Report from the Center for International Environmental Law: https://www.ciel.org/wp-content/uploads/2019/05/Plastic-and-Climate-FINAL-2019.pdf
- Paris climate agreement: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

References

Center for International Environmental Law. (2019). *Plastic & Climate: The Hidden Costs of a Plastic Plane*t. Center for International Environmental Law.

National Geographic Society. (2019). *A Whopping 91 Percent of Plastic Isn't Recycled* . Retrieved from National Geographic: https://www.nationalgeographic.org/article/whopping-91-percent-plastic-isnt-recycled/

UNFCCC. (2021). *The Paris Agreement* . Retrieved from UNFCCC: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement