**How Waste Contributes to Climate Change**

When we think of what contributes to climate change what comes to mind? For many of us, we might picture a freeway full of cars during rush hour, or perhaps the smokestack of a factory. Greenhouse emissions come from these sources, but also from many more that we might not be as familiar with. Tonight, we will explore some of these alternative sources that all relate to waste: greenhouse gas emissions from food waste, plastic production, waste incineration, and overconsumption in general.

Your activity is to work as a group to explore how your designated type of waste contributes to climate change. Together you will research the topic and will answer the questions on the following pages. At the end of our 30 minutes of research time, your group will present your topic to the rest of the class, using the questions as a guide. Whether one person wants to present or you want to divide up the questions is up to you.

Learning goals: I can identify trustworthy information, synthesize it, and communicate about it effectively.

Time allotted:

* 30 minutes to research, answer questions, and determine how presentation duties will be divided
* 5 minutes per group to present to the rest of the class on your topic

**Topic #1:** Food Waste

*If food waste were a country, it would be the world’s third largest emitter of greenhouse gasses, behind only China and the United States.*

**Guiding Questions:**

1. What are some ways that food waste contributes to greenhouse gas emissions?
2. What are some estimates of the amount of food that is wasted?
3. Is food waste a global problem or do certain regions contribute to it more?
4. What are some industry practices that contribute to food waste?
5. What are some strategies to limit our own food waste?
6. Did you find anything else that you’d like to share?

**Topic #2:** Plastic Production

*Half of all plastic on Earth has been produced in the last 15 years.*

**Guiding Questions:**

1. What is the source chemical for most plastic?
2. What is hydrofracking?
3. How is ethane from hydrofracking converted to plastic? What is an ethane cracking facility?
4. Where are ethane cracking facilities typically located in the United States?
5. How much is plastic production expected to increase in the next few decades?
6. What are some ways that plastic production contributes to greenhouse gas emissions?
7. Did you find anything else that you’d like to share?

**Topic #3:** Waste Incineration

*Despite high costs and negligible electricity generation (0.4% of US’ electricity production), two-thirds of all municipal solid waste incinerators in the United States today have access to renewable energy subsidies.*

**Guiding Questions:**

1. What are some typical arguments in favor of waste incineration?
2. What percentage of waste is incinerated in the United States?
3. How much does waste incineration contribute to the United States’ energy production? Is it cost-effective?
4. What are some ways that waste incineration contributes to greenhouse gas emissions?
5. What is fly ash?
6. Where are waste incineration facilities typically located in the United States?
7. Did you find anything else that you’d like to share?

**Topic #4:** Overconsumption

*The United States has about 4% of the world’s population but consumes 24% of its natural resources and creates 12% of its solid waste.*

**Guiding Questions:**

1. How has consumerism changed over time in America?
2. What is fast fashion and how does it contribute to climate change?
3. What are some aspects of online shopping that make it more unfriendly to the climate? What happens to many online returns?
4. What are some natural resources that are impacted by overconsumption?
5. What are some of the impacts of deforestation?
6. What steps can someone take if they want to reduce their own consumption?
7. Did you find anything else that you’d like to share?