Mapping Greenhouse Gas Emissions Where You Live

Name: Date: Pd:

BACKGROUND

Since the start of the Industrial Revolution around 1750, people have been adding substantial amounts of carbon dioxide (CO_2) and other greenhouse gases (such as methane, nitrous oxide, and fluorinated gases) to the atmosphere. Greenhouse gases trap heat in the atmosphere, which makes the Earth warmer.

Different types of greenhouse gases have different impacts on the climate, depending on such factors as how much of the gas is produced, how long it stays in the atmosphere, and how much heat it traps. "Carbon dioxide equivalent" (or CO_2) is a unit of measurement that allows the effects of different greenhouse gases to be compared using CO_2 as a standard unit for reference.

The primary sources of greenhouse gas emissions in the United States are:

- Electricity production: Electricity production generates the largest share of greenhouse gas emissions in the United States. More than 70 percent of our electricity comes from burning fossil fuels, mostly coal and natural gas.
- Transportation: Greenhouse gas emissions from transportation primarily come from burning fossil fuels for cars, trucks, ships, trains, and airplanes.
- Industry: Greenhouse gas emissions from industry primarily come from burning fossil fuels for energy as well as greenhouse gas emissions from certain chemical reactions necessary to produce goods from raw materials.
- Commercial and residential: Greenhouse gas emissions from businesses and homes arise primarily from fossil fuels burned for heat, the use of certain products that contain greenhouse gases, and the handling of waste.
- Agriculture: Greenhouse gas emissions from agriculture come from livestock such as cows, agricultural soils, and rice production.
- Land use and forestry: Plants and soil can act as an overall "sink" (absorbing CO_2 from the atmosphere) or as a source of greenhouse gas emissions. In some countries, large amounts of forest are being burned or cut down, which ends up adding CO_2 emissions to the atmosphere. In the United States, however, forests are growing overall. As forests grow, they help to remove CO_2 from the atmosphere.

PROCEDURE

1) Visit the EPA's FLIGHT (Facility Level Information on GreenHouse gases Tool) by going to http://ghgdata.epa.gov/ghgp/main.do. In the first window that appears, "Explore Greenhouse Gas (GHG) Emissions from Large Facilities", select Illinois. Once the map opens, make sure all boxes are checked in the "Filter By Greenhouse Gas" drop-down. Click "Apply Search".
2) Click on "List" under the "Data View" section to see an alphabetical list of all emitters in Illinois. Scroll through the list and complete the following table:

Top Ranking Facilities for All Greenhouse Gases in My State

Rank	Facility Name	Sector	Amount/CO_2
1			
2			
3			
4			
5			

What do you notice about the top 5 emitters of CO_2?

3) Now click on "Bar Chart" in the "Data View" section to see the top emitters by "sector" or kind of facility. What are the top four emitters by sector and how many metric tons of emissions does each produce?

4) Reselect "list" in the "data view" menu and under "Pick a County" select "Lake". What results do you get? _____ Suggest two explanations for the limited number of emitters in Lake County.

    a.

    b.

5) Under "Browse to a State" return to "Choose State" to see the entire United States. Click "Map" under "Data View".
Which State has the most emitters? _____

Which State has the least? _____

6) Under "Data View" select "List". Sort by Total Reported Emissions to find the largest emitter in the country.
What is that facility? _____

Where is it located? _____

What type of sector does it belong to? _____

7) Select any other state of your liking. Repeat the process followed in question 3 above.

8) Which state produces more emissions, the one you selected or Illinois? By how much?

ANALYSIS
1) How do each of the following emitters contribute to your daily life?
    a. Power Plants

    b. Refineries

    c. Waste

2) Complete the following table:

	Two things YOU can do to help reduce emissions in these facilities	Two things BUSINESSES/SCHOOLS can do to help reduce emissions in these facilities	Two things THE GOVERNMENT (local, state, or federal) can do to help reduce emissions in these facilities
Power Plants			
Refineries			
Waste			