



Unit 5. Modern CO₂ Accumulation

Online homework activity — How much carbon dioxide do you generate?

Student Worksheet

Use the U.S. Environmental Protection Agency Household Carbon Footprint Calculator to estimate your annual greenhouse gas emissions. <http://www.epa.gov/climatechange/ghgemissions/individual.html>. Click on the image in the middle of the page that says “Household Carbon Footprint Calculator”.

First, you will need to enter the number of people who live in your home and enter your zip code to get started.

In part 1, Home Energy, select your primary heating source (natural gas, electricity, fuel oil, or propane). Then enter the approximate average cost of your monthly utility bills (or enter the number of cubic feet, or number of therms for natural gas). Click on the blue circle with an “i” in it to see information on U.S. averages for a household of one person. Read your annual CO₂ emissions in pounds and the U.S. average in the column on the right.

1. What is the average cost of natural gas per month for a household of one person in the United States? _____
2. What is the average cost of electricity per month for a household of one person in the United States? _____
3. What is the average cost of **fuel oil** per month for a household of one person in the United States? _____
4. What is the average cost of **propane** per month for a household of one person in the United States? _____
5. Which of the four is most economical? _____
6. How many pounds of CO₂ does your heating fuel and/or electricity produce over a year?

7. What is the national average of CO₂ for a household of one, in pounds produced by **natural gas** over a year?

8. What is the national average of CO₂ for a household of one, in pounds produced by **electricity** over a year?

9. What is the national average of CO₂ for a household of one, in pounds produced by **fuel oil** over a year?

10. What is the national average of CO₂ for a household of one, in pounds produced by **propane** over a year?

11. Which of the three types of heating fuel produces the least CO₂?

12. How much do you save by turning up your A/C thermostat by a degree in summer?

_____ dollars _____ pounds of CO₂

13. How much do you save by turning down your heating thermostat by a degree on winter nights?

_____ dollars _____ pounds of CO₂

14. How much do you save by replacing five incandescent lightbulbs with energy star lights?

_____ dollars _____ pounds of CO₂

15. What are some other ways shown that you could save money and prevent pounds of CO₂ emissions?

In part 2, "Transportation", enter the number of vehicles in your household. You will also need to estimate approximately how many miles each vehicle is driven each week (or year), and the average gas mileage (*miles per gallon*) of the car. You can check your fuel economy if you know how many miles you drive between fill-ups (using your trip odometer), and then check your gas receipt to see how many gallons it took to fill your tank. But you can check your car's fuel economy online at this website for various makes and models by year: <https://www.fueleconomy.gov/feg/findacar.shtml>. See the estimated pounds of CO₂ produced by your car per year

16. What is the national average amount of CO₂ in pounds per vehicle produced over a year? Click on the blue circle with an "i" in it to the right of "Your Current Emissions from Transportation".

17. Click on the blue circle with an "i" in it below the "Miles" box to see information on the average number of miles per week, and miles per year, in the United States, per vehicle.

_____ miles per week _____ miles per year

18. Click on the blue circle with an "i" in it below the "Miles per gallon" box to see information on the national average miles per gallon. _____

19. What is your vehicle's gasoline mileage (miles per gallon)?

Vehicle 1 _____ Vehicle 2 _____

20. How many pounds of CO₂ do the vehicles in your household produce?

Vehicle 1 _____ Vehicle 2 _____

21. What could you do to reduce your vehicle carbon emissions? List two things.

Click the link at the bottom of the page to proceed to part 3 — “Waste.”

22. What are the average waste emissions for a household of your size?

_____ lbs

23. How much does recycling reduce your CO₂ production? If you recycle some of your household waste, this can counteract some of the CO₂ that you produce. Click the check boxes for the types of items that you recycle. Choices include aluminum and steel cans, plastic, glass, newspaper, and magazines. Click one box at a time to complete the table.

Recycled items	Estimated CO ₂ emissions reduced by recycling
1. Aluminum and steel cans	
2. Plastic	
3. Glass	
4. Newspaper	
5. Magazines	
Total reduction in CO ₂ emissions from recycling all of the items above	
Total CO ₂ emissions from waste after recycling (listed as “Your total waste emissions after recycling”)	

24. How does recycling keep CO₂ out of the atmosphere? What is the relationship between recycling and carbon emissions? Click on the link “Climate Change and Waste”

<https://www3.epa.gov/climatechange/climate-change-waste/life-cycle-diagram.html> . What are the five stages in the cycle?

Click "Continue to Report" at the bottom of the page to see your Household Carbon Footprint Report.

25. What is your current total carbon footprint? _____

26. What is your new total after your planned actions? _____

27. What is the U.S. average carbon footprint? _____

28. Is your carbon footprint lower or higher than the U.S. average? _____