

Dream Car Stoichiometry Project

The purpose of this project is to calculate the environmental impact of your dream car compared to any other car ... the other car could be the car you drive now, or the car your parents drive, or a car you would think would be environmentally friendly.

Calculate the amount of CO₂ each car produces following the steps below.

YOU MUST SHOW ALL YOUR CALCULATIONS WITH UNITS AND CHEMICAL FORMULAS!!!! CIRCLE OR HIGHLIGHT YOUR ANSWERS

You will need to include the following information in your google slides or virtual medium

POINTS	Task
2	1. State the make, model or year of your chosen dream car and take picture/image off the Internet. NOTE if you don't have a dream car then just do a car that your family currently owns.
3	2. Insert a photo of yourself into the driver's seat
2	3. find the miles per gallon your car gets on the highway and record it
5	4. Balance the equation for the combustion of octane (C ₈ H ₁₈). Show element inventory $\text{C}_8\text{H}_{18} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
3	5. Assume you drive 15,000 miles in one year calculate the number of gallons your car using in one year
3	6. Convert gallons to mL. (1 gallon = 3785.4 mL)
2	7. Look up the density of octane in grams/milliliter and use it to calculate the mass of octane you would use in one year. [NOTE: Mass = Density x Volume]
10	8. calculate liters of CO ₂ at STP from grams of octane [HINT: this is a 3 step stoichiometry conversion from mass of octane to volume of carbon dioxide]
3	9. calculate number of 2 liter bottles would be needed to contain all the CO ₂ your dream car produces.
33	10. Repeat all steps and calculations for one other car [#1-9]. [the second car needs to be different than first car. Ex: 1st is sports car, 2nd could be SUV]
5	11. write a thoughtful explanation (50 words minimum) describing why you would want to know how much CO ₂ your dream car produces.
4	12. Create a neat, organized and colorful final product [google slide show, video recording, or other online submission] with all information included.
75 TOTAL	TOTAL POSSIBLE POINTS 75