



Fleet Manager

STEM Sims

Lesson 2: Cough It Up

One of the major problems with internal combustion engines that are found in most vehicles is the amount of carbon dioxide exhaust the engine releases after the fuel is burned. Can you convert a vehicle’s engine type to clean up its exhaust and reduce the carbon dioxide emissions?

Doing the Science

1. Start the Fleet Manager Simulation by clicking on the “Sim” tab.
2. Click on one of the vehicles in the fleet.
3. Click the “Use” button, then the “Drive” button. When the vehicle completes the route, click the “Status” button.
4. Record in Table 1 the Vehicle name, Engine Type, Vehicle Color, and CO₂ Emissions released annually by the vehicle.
5. Close the box by clicking the “X” in the upper right-hand corner, and then click the “Fleet” button.
6. Select a different vehicle and repeat steps 3-5. Test a total of three different vehicles.
7. Select one of the same vehicles you previously tested (use the vehicle’s color if you can’t remember the names of the vehicles) and click the “Convert” button at the bottom of the screen.
8. Select one of the engine conversions. Make sure to record the engine conversion type in Table 1. Click the “Make Conversion” button.
9. Repeat steps 3 – 5 to test drive your modified vehicle.
10. Repeat steps 7 – 9 for a total of three converted vehicles.

Table 1.

Vehicle	Engine Type	Vehicle Color	CO ₂ Emissions (tons/year)

Do You Understand?

1. Which vehicle that you tested released the most carbon dioxide into the atmosphere on an annual basis?

2. Which engine conversion was most effective at reducing the amount of carbon dioxide released by the vehicle? Provide a reason for the improved air quality rating of this vehicle’s engine.