

Idle Free Schools

Analyzing the Data

As part of an idling reduction campaign, students can analyze the data that they collected during the observations to determine how much gasoline was used during the observation periods.

Different sized engines consume gas at different rates when they are idling. To simplify, place your vehicles in one of two categories:

- LDGV: light-duty gasoline-fueled vehicles (passenger vehicles)
- LDGT: light-duty gasoline-fueled trucks (pick-up trucks, SUVs, minivans)

Here is the approximate rate of fuel used during idling for LDGV and LDGT.

Vehicle Type (Engine Size in Liters)	Idling Fuel Use (with no car accessories, like AC or radio, running)
LDGV (1-3 liters)	0.0053 gal/min (or 0.32 gal/hr)
LDGT (4-5 liters)	0.0118 gal/min (or 0.71 gal/hr)

Source: http://www.transportation.anl.gov/pdfs/idling_worksheet_light-duty.pdf

To calculate how much gasoline is used by an idling vehicle, you can use this simple formula:

(# of vehicles) X (average number of minutes idling) x (gal/min) = Gallons of Gas

Or for a single vehicle: (total minutes idling) x (gal/min) = Gallons of Gas

To calculate how much money that gasoline costs, multiply the amount of gas by the current amount of gas per gallon. To calculate the potential yearly cost for the idling, multiply that number by 365.

A simple example:

A sedan (LDGV) is idling for 15 minutes.

$(1 \text{ LDGV}) \times (15 \text{ minutes of idling}) \times (0.0053 \text{ gal/min}) = .08 \text{ gal gas}$

$(.08 \text{ gal gas}) \times (\$3.50) \times (365) = \$102$

One car idling for just 15 minutes has wasted .08 gallons of gasoline. That doesn't seem like much, but if they idle for 15 minutes every day of the year, that's 29.2 gallons of gasoline in one year. At a price of \$3.50/gallon, that's \$102 spent in gasoline to get you nowhere.

A more complicated example:

There are 35 SUVs/minivans idling for an average of 15 minutes each and 25 sedans idling for an average of 10 minutes each.

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Let's break this down.

For the 35 SUVs/minivans (LDGT) idling for an average of 15 minutes each:

$(35 \text{ LDGT}) \times (15 \text{ minutes average of idling}) \times (0.0118 \text{ gal/min}) = 6.2 \text{ gal gas}$

For the 25 sedans (LDGV) idling for 10 minutes:

$(25 \text{ LDGV}) \times (10 \text{ minutes average of idling}) \times (0.0053 \text{ gal/min}) = 1.3 \text{ gal gas}$

Total them up:

Gallons of gas wasted during the time period: $6.2 + 1.3 = 7.5$

Amount of money wasted on gas during the time period: $7.5 \times \$3.50 = \26.25

If all of those cars idle the same amount every day for a year, $\$26.25 \times 365 = \$9,581.25$

Amount of money wasted on gas (going nowhere) for a year = \$9,581

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