

Idling Car Awareness

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The purpose of our project is to help suggest to people that a small action such as turning off their idling cars could help the world considerably. Our question was; What is the average idling time during a morning drop off at an elementary school, and how much carbon dioxide is released during that time period? Our prediction to this was that the average idling time of a car when dropping off kids at school in the morning is around 45 seconds. But in the end, we got more than we had expected.

Our data collection went something like this. We visited a school one morning and stood at the drop-off entrance timing each car that came through for the length of time that it idled in place as the child got off. We then found the sum of all the times and divided it by the total number of cars that came through, finding the average. This gave us the answer to the first part of our question.

With the data we collected at Forest Park Elementary School, in Portland, OR, we learned that on average, a car idles for 61 seconds. And multiplying that by the 85 data points that we collected, that would mean about 11.9 pounds of carbon dioxide are released by just the cars in one morning of drop off... of course this is also with the fact that a car releases 0.14 pounds of carbon dioxide for every minute it idles. And imagine that multiplied by the number of schools in the city, state, and country. Now think, this is just the amount released when dropping kids off at school in the morning. What about after school pick-up or getting a snack at a drive through? If you take time to think, there are so many times every day that someone might unnecessarily idle their car, and this will repeat itself every day, week, and year for generations, becoming one of the largest everyday causes of global warming.

The purpose of our experiment was to bring attention to others about this topic. Although our data proves our point, it could definitely have been more accurate. For example:

- The timing of the average idling times of each car was quite overwhelming. The data collection could have been better planned and therefore increased the accuracy in our results.
- We only collected data from one school, Forest Park Elementary. This means that we didn't have enough data points or variety of data. Meaning that our conclusion of 65,620.66 gallons per morning was technically saying the amount of carbon dioxide released if there were 98,817 Forest Park Elementaries in the USA.

While conducting our experiment, we also learned about some common theories that, in actuality, aren't true. Some very commonly mistaken facts are that:

- When cars are idling, it is using the engine and drains the battery...
 - This is probably one of the most mistaken facts about idling cars. People over time have been taught to believe that idling your car destroys its engine and battery but the truth is nearly exactly the opposite. When idling a car, it puts the engine in a state that it wasn't built for, meaning an inefficient use of its energy.

This improper use of the battery and engine will eventually degrade their efficiencies and the mileage.

- It takes more gasoline to restart your engine than it takes to idle...
 - Once again, something that many people believe to be true is really a lie. There is definitely a slight amount of time when idling your car is a better option than restarting the engine, but that time is used up at after just 10 seconds. The break-free rule for cars is that if you're ever idling for over 10 seconds, you should just turn off your engine completely.
- A car's engine needs to idle for a few minutes to warm up before being driven
 - Your car can sit there for a while, heating up the inside for you, but that has nothing to do with warming up the engine. There is no better way to warm up the car than to just drive it. So next time instead of waiting for your car to warm up, just drive it and you will get your results faster.

Every day in the US, there are about 3.8 million gallons of gas being wasted from cars idling voluntarily. Even with the recently low gas prices, that still adds up to quite a lot. In Oregon alone, gas prices range from \$2.53 to \$3.88, least and most respectively.

For every 15 minutes a car idles, about a quarter gallon of gas is wasted. If you idle for 15 minutes each day, going by Oregon's gas prices, that would be \$4 in the average working week. If you do the math for the cost in a month, in a year, wouldn't it just be better to not idle to start with? So please, next time, keep these in mind when your car is idling and remember...it benefits you too.

Overall, though, our experiment just gave more support to our claim that such a small action every morning could help the world so much. If actions as small as turning off your car engine can affect the world so considerably, imagine how much more of a difference we could make in our environment.