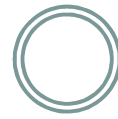


Idle Free Schools



**IMPLEMENTING
AN IDLING
REDUCTION
CAMPAIGN IN
YOUR SCHOOL**

Air Pollution Primer

- The air we breathe is polluted by activities we do every day.
- These activities add gases and particulates to the air, which can accumulate in high enough concentrations to harm human health and the environment.



Hazardous Air Pollutants



- EPA has listed 188 Hazardous Air Pollutants, also called **Air Toxics**.
- Some Air Toxics are known to cause cancer, respiratory effects, reproductive effects, birth defects or other serious health effects.
- EPA has identified 33 **Priority List Air Toxics** that present the greatest threat to public health and the environment.

Mobile Source Air Toxics



- There are also **air toxics** that are **emitted from** mobile sources (e.g., **cars**).
- These are called Mobile Source Air Toxics (MSATs)

Mobile Source Air Toxics



- More than **1,000 compounds** have been identified in exhaust and evaporative emissions from mobile sources.
- MSATs have the potential for serious adverse health effects and are responsible for about **50% of the cancer risk** nationwide.
- Nationwide, mobile sources represent the **largest contributor** to air toxics.

Examples of MSATs



*Also on EPA Priority HAP List

Acetaldehyde*	Diesel Exhaust	MTBE
Acrolein*	Ethylbenzene	Naphthalene
Arsenic cpds*	Formaldehyde*	Nickel cpds*
Benzene*	N-Hexane	POM (Sum of 7 PAH)*
1,3-Butadiene*	Lead cpds*	Styrene
Chromium cpds*	Manganese cpds*	Toluene
Dioxin/Furans*	Mercury cpds*	Xylene

Mobile Sources and Global Climate Change



- MSATs produce greenhouse gases, such as carbon dioxide (CO₂), which trap heat in the Earth's atmosphere, contributing to global climate change.



Children and Air Pollution



- Children are especially **susceptible** to Air Pollution

Children and Air Pollution



- Humans inhale/exhale 9,000 to 15,000 liters air/day
- Children's **developing lungs** have a smaller surface area and a higher inhalation rate, which means greater exposure and potentially permanent damage to lung function.

Early childhood: 20-40 breaths/min.

Late childhood: 15-25 breaths/min.

Adults: 12-18 breaths/min.

Vehicle Idling at Schools: The Problem



- Monitoring at schools have shown elevated levels of **air toxics** during the afternoon hour coinciding with parents picking up their children.



Vehicle Idling at Schools: The Problem



- Idling engines produce thousands of tons of toxic pollution per year.
- Limiting idling can dramatically reduce these pollutants and your children's exposure to them.



The Idle Free Schools Toolkit



- The Idle Free Schools Toolkit was designed to help schools implement idling reduction campaigns and reduce unnecessary vehicle idling.
- The Toolkit includes everything needed to run an effective idling reduction campaign at a school.
- While all of the activities described in the Toolkit are strongly recommended to create a more effective and lasting program, schools need to decide how to best implement an idling reduction campaign at their own school.

Making it a Student Project



- This project could be undertaken by students as a science or community involvement project.

Making it a Student Project



- **Students can:**
 - Learn how to run a public service campaign from start to finish
 - Learn about air quality issues
 - Conduct the observations
 - Coordinate the letters and pledges; collect the pledges
 - Learn interpersonal skills during Driver Contact Event
 - Work with real life data
 - Present the data as a science project or to the PTA (public speaking experience)

Making it a Student Project



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

Making it a Student Project



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

$(\# \text{ of vehicles}) \times (\text{average number of minutes idling}) \times (\text{gal/min}) = \text{Gallons of Gas}$

Or for a single vehicle: $(\text{total minutes idling}) \times (\text{gal/min}) = \text{Gallons of Gas}$

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.

Making it a Student Project



Conduct Observations

- Taking observations of driver behavior before and after the campaign can provide powerful data to show parents and students how severe the idling problem at the school is and to demonstrate how effective the campaign was.



How to Conduct Observations



- Pre-Campaign Observations should be pre-campaign
 - Release no information about the idling reduction campaign before the observations
- Pre-Campaign Observations should “blind”.
 - This is essential for obtaining true data
- If students conducting the observations, safety comes first!
 - Provide supervision by adults if necessary
- Observations should be observed during afternoon pickup for 4-5 days, if possible.
 - Schools can decide if morning drop-off is an issue as well.

How to Conduct Observations



- 2-3 sets of observations are recommended
 - Pre, (Mid) and Post Campaign
- Observations should not be combined with the Driver Contact Event
 - The data will be skewed because drivers will be influenced
- Have observers ready to conduct the observations about 20-30 minutes before school is dismissed.
 - To catch the early arrivers!

Observation Sheet



Idle Free Schools

Sample Observation Form

Observer Name: _____

School: _____ **Zone:** _____

Day of Week: _____ **Date:** _____ **Time:** _____

Weather (circle one):

Sunny Partly Cloudy/Sunny Cloudy Precipitating Windy

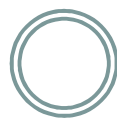
Outside Temperature (circle one):

Hot Mild Cool Cold **Estimated Temp:** _____



Vehicle (passenger cars) or Truck (pick-up truck, SUVs, or minivans)	Brief Vehicle Description	Arrival Time	Is Vehicle Idling? (Y/N)		Depart Time	If idling: how many minutes?	Notes
V T			Y	N			
V T			Y	N			
V T			Y	N			

Present Your Data and Introduce the Campaign



- Present your data
 - Great for kids to do!
- Explain the new policy
- Ask for support

Data Collected	9/10-13 observations
Total # Vehicles	100
# Vehicles Idling	25
Total Idling Mins	250
Avg. Idle Time/Vehicle	10
Total Gas Wasted	2.1 gal
Total \$ in Gas Wasted in a Year of Idling	\$2,689

Policies, Letters and Pledges



- **Institute Policies:** Include an idling policy in the student handbook and provide to bus drivers.
- **Inform all Drivers:** Regularly tell parents, teachers, staff, delivery truck drivers and bus drivers about the new policy and the campaign.
- **Pledges:** Ask all drivers to sign a pledge not to idle unnecessarily. Hold a contest to see which class returns the most pledges.

Sample Idling Policy for Passengers Vehicles and Delivery Trucks



Purpose

Eliminate all unnecessary or avoidable idling by passenger vehicles and delivery trucks at [Insert Name of School].

Guidance

1. When waiting for students to be picked up, all engines should be shut off.
2. All drivers should turn off engines when they arrive at school and when they expect to be parked for more than 10 seconds.
3. If idling is necessary for temperature control, please restrict it to no more than 5 minutes.

Sample Idling Policy for Bus Drivers



Purpose

Eliminate all unnecessary or avoidable idling by **[Insert Name of School]** school buses such that idling time is minimized in all aspects of school bus operation.

Guidance

1. Turn off the engine as soon as possible after arriving at school loading or unloading areas. Only restart the bus when you are ready to depart.
2. Limit your idling time during early morning warm-up to what the manufacturer recommends (generally no more than five minutes).
3. Drive farther behind a vehicle with visible exhaust or a noticeable odor.

Idle Free Schools

Sample Letter to Parents

Dear Parents and Guardians,

[Insert Name of School] will be instituting a vehicle idling policy at the school. All persons operating vehicles at the school should adhere to the following guidelines:

- ❖ When waiting for students to be picked up, all engines should be shut off.
- ❖ All drivers should turn off engines when they arrive at school and when they expect to be parked for more than 10 seconds.
- ❖ If idling is necessary for temperature control, please restrict it to no more than 5 minutes.

We are implementing this policy to reduce the students' exposure to air toxics emitted in the exhaust of idling vehicles.

*Idling vehicles contribute to air pollution and emit **air toxins**, which are pollutants known or suspected to cause **cancer or other serious health effects**.*

Included with this letter is a brochure or flyer to tell you more about idling reduction and a pledge sheet. As part of our Idle Free Schools campaign, we are asking all parents, teachers, staff, bus drivers and delivery truck drivers to pledge to not idle unnecessarily. The pledge can be returned to school with your student.

We encourage you to eliminate unnecessary idling not only at our school but anywhere you are waiting for more than 10 seconds. This simple change will improve the air our children breathe, as well as the air quality in our neighborhoods.

Thank you for your support!

Dear Teachers and Staff at **[Insert Name of School]**,

[Insert Name of School] will be instituting a vehicle idling policy at the school. In addition, we are implementing an Idle Free Schools campaign to spread the message of reduced vehicle idling, and we need your help! Here's how you and your students might be involved in the Idle Free Schools campaign:

- ❖ *If students will be involved*, students from the **[insert grade, or club, or class]** grade at this school will be working on the campaign and will need to be outside of the school 20 minutes before school is excused on several days throughout the school year. We will provide you with those exact dates as they approach.
- ❖ Students will be taking home information to inform their parents of the campaign. This includes a letter, a brochure or flyer and a pledge form. Students will be bringing back the signed pledge forms.
If students will be involved, student from the campaign will collect your pledges and tally them up. *If students won't be involved*, teachers shall be responsible for collecting the pledges and tallying them up.
- ❖ The class that returns the most pledges will receive *(if providing an incentive, for example a pizza party, please insert that information here.)*

As a reminder, the vehicle idling policy at the school is in effect. All persons operating vehicles at the school should adhere to the following guidelines:

Inform Drivers – Letter to Delivery Truck Drivers



Please find attached a flyer that will provide more information about the importance of idling reduction, which will not only improve the air, but will

save you money in fuel costs.

A typical truck burns approximately one gallon of diesel fuel for each hour it idles and many trucks idle between 4-8 hours a day, which could cost around

\$5K-\$12K/year in wasted fuel per truck.

Idle Free Schools

Why Not Idle?

Car exhaust contains **air toxics**, which are known to cause cancer, respiratory effects, reproductive effects, birth defects or other serious health effects.



Because of their developing lungs and higher breathing rates, **children are more susceptible** to air pollution.

If many vehicles are idling at once, for example in school pick up/drop off areas, a "hot spot" of exhaust pollution can be created.

Monitoring at schools has shown **elevated levels of air toxics** during the afternoon hour coinciding with parents picking up their children.

Idling Facts



The chemicals from exhaust are harmful and can make **asthma** worse.

Most people waste 1-2 entire tankfuls of gas every year by idling.

Ford Motor Company says: "Avoid idling more than 30 seconds because excessive idling can actually **damage your engine.**"

Idling more than 10 seconds uses more fuel than restarting the engine.

Manufacturers assure that frequent restarting won't harm an engine.

What can you do?

If you are going to wait more than 10 seconds, turn your vehicle off.

It's as **simple** as that.

Pledge to not idle unnecessarily anyplace, anytime.



Reducing idling at schools can **reduce children's exposure** to toxic vehicle exhaust.

For more information: visit www.epa.gov/region8/air/idlefree.html

**Turn the Key,
Be Idle Free!!**

Idle Free Schools

Pledge Form for Parents

I _____ hereby pledge to my child _____ that I will turn off
(Name of Parent) (Name of Child)
my engine on school grounds and anywhere else I might be waiting in my vehicle.

Signed by (Signature of Parent) _____ Date _____

Witnessed by (Signature of Child) _____

Teacher's Name _____

*To protect air quality and your children's health, it is recommended
that you idle your vehicle no longer than 10 seconds.*

Turn Your Key, Be Idle Free!

There are **25 million reasons**
why it's important to **reduce idling.**



CLEAN SCHOOL BUS USA

Take the pledge...
the key to reducing idling is you.



Idling Signs



- Install external idling signs:
 - Where parents will easily see them when picking up students
 - Where buses congregate
 - Where truck drivers stop to make deliveries



Idling Signs



CHILDREN BREATHING
NIÑOS RESPIRANDO



NO IDLE ZONE

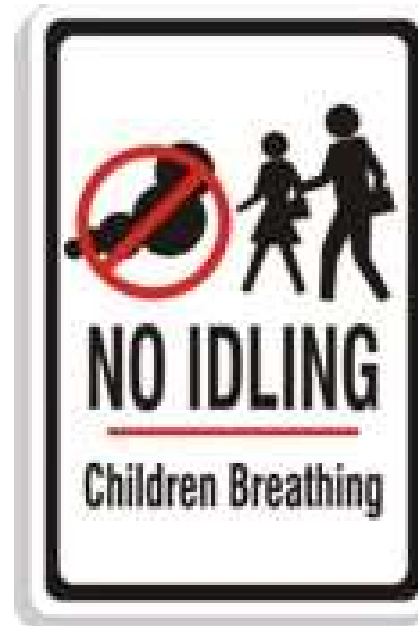
Turn your engine off!
¡Apague su motor!



NO-IDLE ZONE

IT ALL ADDS UP TO CLEANER AIR

Idling Signs



Driver Contact Event



- **Talk to Drivers:**

Have at least one annual “driver contact event”, where drivers are approached, offered a flyer, and either thanked for not idling or informed about the school’s idling reduction campaign.



Driver Contact Event



- Should occur after the campaign was publicized, the idling signs are posted, letters have been sent home and pledges collected.
- Should occur separately from observations.
- Great for the kids to do!
- Approach everyone
 - Thank drivers who are not idling
 - Remind drivers who are idling about the policy
- Offer everyone a flyer, and if possible, an incentive.

Providing Incentives



- Incentivize drivers during the “driver contact event;” to classes that return the most pledges, to parents that return pledges, etc.
 - Example incentives: key chains with the school logo on one side and the “turn the key, be idle free” logo on the other, gift cards or coupons from local vendors, a pizza party or ice cream party for the class with the most pledges, etc.

Turn Your Key, Be Idle Free Logo



Publish Articles



Sample School Newsletter Article

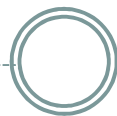
Idle Free Schools Turn Your Key, Be Idle Free!

[Insert Name of School] is supporting starting an idling reduction campaign here at the school, which will include a new idling reduction policy. Did you know that if everyone in the U.S. stopped idling for five minutes a day it would be equivalent to taking five hundred thousand cars off the road and saving 1.6 Million tons of CO₂? [Insert Name of School] is supporting this campaign and implementing the new policy to reduce student's exposure to air toxics that are emitted from idling vehicles.

Students are asked to have their parents sign pledge forms that they won't idle unnecessarily. All teachers, staff, bus drivers and delivery truck drivers will also be asked to sign a pledge. You will see new idling signs posted outside the school and there will be an Idle Free Schools event in March to remind parents not to idle when waiting to picking up their kids after school.

Save money and protect the air by turning off your car when waiting more than 10 seconds. Turn Your Key, Be Idle Free!!

Recommended Schedule



Early to Mid September	Pre-campaign observations
Late September	Announce campaign to school, PTA
October	Publish policies, send home letters, conduct pledge drive, publish articles in school newsletter
November	Hang up signs
January	Mid-campaign observations (optional)
March	Driver contact event
April	Post campaign observations
Annually	Reminders; 1 driver contact event

Keep Up the Good Work!



- Continue the campaign into subsequent years, for example:
 - Continue to teach about air quality issues and air pollution.
 - Continue to publish reminders about the no idling policy in the school newsletter.
 - Conduct one driver contact event per school year.

Tools and Assistance



- More information can be found at:
<https://www.epa.gov/schools/idle-free-schools-toolkit-healthy-school-environment>
- For more information or assistance, or for an electronic copy of the entire Toolkit, please contact:
Volpe Vo, US EPA Region 8, 303-312-6033,
Vo.Volpe@epa.gov