

green team

CARPOOL PROJECT

Why Carpool?

Did you know that here in Washington State, petroleum used for transportation is the number one source of air toxins and greenhouse gas emissions, a major contributor to global warming?

Each of us can reduce our impact on the environment. Think about it – every time two people share a ride, they're helping to reduce emissions from cars by half! Reducing vehicle emissions helps combat global warming, improves air quality and has positive effects on public health.

And who hasn't been stuck in traffic recently? The Worldwatch Institute found that the average American adult now spends 72 minutes per day behind the wheel, often alone. Carpooling cuts down on congestion, which cuts travel time.

Through your school's carpooling campaign, you can make a measurable difference in fossil fuel use and in the greenhouse gas and toxin emissions released into Washington's atmosphere. And you'll be cutting down on traffic congestion.

The Green Team Carpool Project is easy to implement, with step-by-step instructions for helping participants better understand how their actions affect the environment. These project guidelines will support your environmental club or class through the entire process, from determining the scope of the project through implementation and results presentation.



King County

Department of
Natural Resources and Parks
Solid Waste Division

Step-by-Step Guide for Implementing the Carpool Project

1. Determine the scope of the project. Do you want to encourage carpooling on a single day, for example on Earth Day or Spirit Day? Would you like to make this a monthly or quarterly event? If you make the project a recurring event, consider including a challenge to beat the previous event's emissions!

2. Choose the day or days for carpooling. Consider school schedules in your decision. Are there days to avoid based on after-school events or activities? The key is to select a time that will encourage participation and facilitate student involvement.

3. Recruit participants using a sign-up sheet with a pledge. The sign-up sheet (see sample) could be in the form of multiple large posters placed at high-traffic areas of the school or a few students with clipboards can circulate at lunchtime to sign students up. At the top of the sign-up sheet, include a pledge statement.

Example: "In order to save fossil fuels and emit less CO₂ and other hazardous pollutants into the atmosphere, I agree to carpool with at least one other person on (Spirit/Earth) Day." (Note: If driving with parents, must have at least two students in vehicle.)

4. Create a pledge form for action.

Once students sign up to participate, provide them with a pledge form that explicitly states the actions they will take. Here's an example: "In order to save fossil fuels and emit less carbon dioxide and other hazardous pollutants into the atmosphere, I agree to carpool with at least one other person on (Spirit/Earth/Carpool) Day. I also agree to calculate my gasoline usage and emissions based on type of vehicle and number of people in the carpool." Provide a calculation sheet (see sample) with the pledge form, and post both of these as PDFs for easy download from the school website.

5. Share facts about green house gas emissions with the student body.

Distribute information about why burning less fossil fuel and releasing less particulate matter into the atmosphere is important. The facts (see samples) could be shared on morning announcements, posted on the school website, listed on a sign-up poster, or be printed on the back of the calculation sheet.

6. Publicize the carpool day.

Make sure that everyone knows the date of the carpool event. Include an announcement and information on the school website, in the daily bulletins, and in the school newsletter. Remind students that if they can't find someone to carpool with, they can take the bus, walk, or ride a bicycle to school!

7. Send out an email reminder

Use the email list from the sign-up sheet to send a reminder to participants the week before carpool day. Send out a second notice one day in advance. Remind students about the pledge and calculation worksheet.

"Remember to carpool on ____ Day! Download the calculation worksheet here."

8. Set a deadline for participants to turn in their gasoline usage and emissions savings.

In addition to calculating emissions savings, consider calculating how many trips are saved through carpooling. For example, if four people share a ride, three trips have been saved!

9. Compile and publicize the effects of your carpool day.

Add savings from individual sheets and share greenhouse gas, fossil fuel consumption, and emissions savings with the school. This could be shared in the form of morning announcements, school-wide posters, a write-up in the school paper, or an article on the school website.

10. Report your results to the larger community.

Send the results of your carpool day to the school board, your local paper, and to the King County Green Team program. Student groups that complete projects are recognized by King County Solid Waste Division each year. Send project information to greenteam@triangleassociates.com.

Facts about Driving and Greenhouse Gases

Carbon dioxide and other gases warm the surface of the planet naturally by trapping solar heat in the atmosphere. This is a good thing because it keeps our planet habitable. However, by burning fossil fuels such as coal, gas and oil and by clearing forests we have dramatically increased the amount of carbon dioxide in the Earth's atmosphere and temperatures are rising.

- *Inconvenient Truth website, climatecrisis.net*

Every day, Americans use more energy and generate more pollution in vehicular traffic than they do in the production of all goods, the operation of all commercial enterprises, or the running of their homes.

- *American Public Transportation Association*

Leaving your car at home just two days a week will reduce greenhouse gas emissions by an average of 1,590 pounds per year.

- *epa.gov/climatechange/wycd/road.html*

Gasoline produces 19.6 pounds of CO₂ per gallon burned. - *Marland, Gregg. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, TN*

Between 2002 and 2012, vehicle miles traveled by drive-alone commuters will increase by at least 15 percent, generating an additional 43 million metric tons of carbon dioxide (CO₂) annually. - *EPA*

A car that gets 20 miles per gallon will emit about 50 tons of carbon dioxide over its lifetime. A car getting 40 mpg will emit half that much.

- *nrdc.org/globalWarming/gsteps.asp*

More than half of our CO₂ comes from vehicles, so use public transit, carpool, bike, walk, or work from home if possible. - *WA Dept. of Ecology*

Commuters waste 2.3 billion gallons of fuel simply from idling in traffic jams. - *Texas Transportation Institute 2005 Urban Mobility Study*

You save one pound of carbon dioxide for each mile of driving you eliminate. - *WA Dept. of Ecology*

Passenger cars burn about 8.5 million barrels of oil per day and emit more than a billion metric tons of carbon dioxide (CO₂), the main greenhouse gas contributing to climate disruption. - *EPA*

A typical car produces three times its weight in carbon dioxide emissions - a major greenhouse gas. Light cars produce fewer emissions and cost less. - *daidsuzuki.org/Climate_Change/What_You_Can_Do/at_home.asp*



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More Facts about Driving, Greenhouse Gas Emissions, and Ways to Reduce Your Impact

Every day the average adult breathes over 3,000 gallons of air. Children breathe even more air per pound of body weight and are thus more susceptible to air pollution. The Puget Sound area is in the top fifth percentile in the U.S. for highest toxic air levels. - *Puget Sound Clean Air Agency*

Each gallon of gas burned causes over one pound of air pollution, and each year the average car causes over 600 pounds of air pollution. - *Puget Sound Clean Air Agency*

In the central Puget Sound area, over 70 million miles are traveled every day, using over 3 million gallons of gasoline - *every day!* - *Puget Sound Clean Air Agency*

Every year motor vehicles driven in the United States produce nearly a quarter of the annual U.S. emissions of carbon dioxide (CO₂), the primary global-warming gas.
- *Union of Concerned Scientists*

Public transportation uses about one-half as much fuel as private vehicles for every mile traveled.
- *Brookings Institute*

Traveling on public transit also produces on average 95% less carbon monoxide, 90% fewer volatile organic compounds, and about 45% less CO₂ and nitrogen oxide as traveling the same distance in a personal vehicle.
- *Brookings Institute*

If we all left our car at home on day per week and rode the bus or carpoled, the result would be a 20% reduction in commuter traffic. - *Brookings Institute*

Walking or biking instead of driving is better for your health and for the environment. Walking at a moderate pace burns 280 calories every hour, while bicycling at a moderate pace burns 450 calories every hour. Driving, which only burns 110 calories, can leave you more stressed out than when you began!
- *Calorie-counter.net*



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Calculate Your Gasoline Savings from Carpooling

Here are three easy steps to calculate your gasoline savings from carpooling.

1. Determine your vehicle's gas mileage. For example, a compact passenger vehicle such as the Honda Civic gets 30 miles per gallon and a mid-size SUV such as the Nissan Pathfinder gets 15 miles per gallon.

2. Calculate how many gallons are used for every mile you drive.

$$\boxed{} \div \boxed{} = \boxed{}$$

Miles Miles/gallon Gallons used per mile

3. Calculate your gasoline savings from carpooling.

$$\boxed{} \div \boxed{} = \boxed{}$$

Gallons used per mile # passengers per vehicle Gallons saved through carpool

Reducing our dependence on fossil fuels helps protect the environment! Fossil fuels are mined out of the earth from places such as Alaska and the Middle East. Saving gasoline also saves dollars. You can do the calculation below two times – once for a single passenger vehicle and a second time for a carpool. Note how much money you can save!

$$\boxed{} \times \boxed{} = \boxed{}$$

Gallons used Dollars/gallon Dollars spent

Find more Green Team project ideas on the King County web site at metrokc.gov/dnrp/swd/secondaryschool/gtworkshops.asp.

Calculate Your Carbon Dioxide Savings from Carpooling

Here are three easy steps to calculate your carbon dioxide savings from carpooling.

1. Determine how many pounds of CO₂ your vehicle releases based on its size. Use whichever example is closest to your vehicle type.

- Standard passenger car releases .667 pounds of CO₂ per mile
- Mid-size SUV releases 1.33 pounds of CO₂ per mile

2. Calculate how many pounds of CO₂ are released for every mile driven.

$$\begin{array}{ccccc} \boxed{} & \times & \boxed{} & = & \boxed{} \\ \text{\# Miles driven} & & \text{Lbs. CO}_2 \text{ per mile} & & \text{Lbs. of CO}_2 \text{ released per trip} \end{array}$$

3. Calculate CO₂ savings from carpooling.

$$\begin{array}{ccccc} \boxed{} & / & \boxed{} & = & \boxed{} \\ \text{CO}_2 \text{ used per mile} & & \text{\# passengers per vehicle} & & \text{CO}_2 \text{ saved through carpool} \end{array}$$



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This notice will be provided in alternate
formats upon request.

206-296-4466, 1-800-325-6165 ext. 6-4466, TTY Relay: 711

Carpool Day Sign-up Sheet

"In order to save fossil fuels and emit less carbon dioxide and other hazardous pollutants into the atmosphere, I agree to carpool with at least one other person on Carpool Day on _____. I also agree to calculate my gasoline usage and emissions based on type of vehicle and number of people in the carpool and to share that information with the organizers."

Name (Please print)	Email	# People in Carpool	Signature



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