



Clean Air Schools Toolkit

SECONDARY





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Introduction to Toolkit

In Greater Manchester, we need to clean up the air we all breathe.

Dirty air from road transport can seriously damage our health and plays a part in thousands of deaths every year.

Children are some of the most vulnerable to the impacts of air pollution in our society. Because children's lungs are still developing, air pollution can have a bigger impact on their health than it does on adults'. There is a strong link between air pollution, the worsening of asthma symptoms and more frequent cases of coughs and bronchitis.

It is for this reason that we believe schools should help take a stand against air pollution and ensure their students have cleaner air to breathe.

We have therefore decided to put together a toolkit to help your school take action against air pollution.





How to use the toolkit:

1. Set up a team

This could be a new group of interested students, an eco-team or a whole class group.



2. Complete the introductory lesson

Use the lesson screens, lesson plan and lesson plan resources to help you.



3. Choose your first campaign

With your team, select one of the following - Fit and Fun Ways to Travel, Parking, Engine Switch-Off, Clean School Deliveries or Quieter Routes. We recommend you print the campaign plans themselves in A3 format.



4. Start planning your campaign

Use the Clean Air School Action Planning Sheet and the Campaign Plan Resources to help you.



5. Take action!

Involve your school community in your campaign activities, and you can even invite your wider local community to take part.



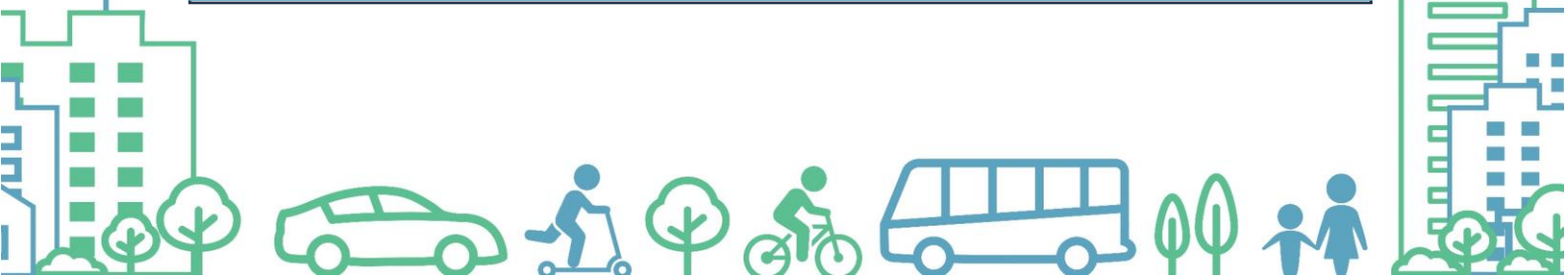
6. Celebrate your success

Use the Air Quality Monitoring Guide to measure the impact of your campaign activities and then share these achievements with the whole school!



7. Take further action

Return to the campaign plans and decide which one you're going to tackle next!





You will also find the following at the back of the toolkit:

- **Clean Air School Action Plan:** this guide helps school leaders to significantly improve air quality around a school and can be used in conjunction with the campaign plans.
- **School Calendar:** you can use this calendar to help you plan when to complete your campaigns and see what else is happening across the UK.
- **Air Quality Fact Sheet (Student):** share this document with your students for reference.
- **Air Quality Fact Sheet (Teacher):** this document contains extra information that may help you with your lessons and campaigns.



Clean Air Introductory Lesson

Key Stage 3: 60-90 mins

EXPLORE

Clean air ethics

'I believe the Prime Minister has a moral obligation to ensure the UK has clean air'

Consider this statement and run a brief debate using agree/disagree/unsure signposts to support the thinking process and show existing understanding. Stand next to agree, disagree, unsure sign-posts. Discuss in groups, feedback your thoughts to the class. Move if you change your mind.

Look together at legal obligation.

Using information on the slides, review and discuss: what is air pollution, hotspots in Greater Manchester, how they could use the air quality index.

What impact does ambient exposure to air pollution have on you?

Look at the implications on everyone's health, including the impact on children's lungs, the short term and long term effects. Watch the video to see specific impact on a teenager with asthma in Greater Manchester.

Can you predict the journey that would expose you to the most/least emissions?

Activity: Students sort the journeys from highest to lowest exposure to pollution. Were they surprised by any of the results? Explore results – why do students think that they are so high when travelling in cars?

National Curriculum Subject Links:

Geography - recognising how people can improve or damage the environment; identifying opportunities for their own involvement in managing environments sustainably.

English - planning, predicting, debating, and communicating to the wider community in the context of an issue which is real, relevant and motivating.

Citizenship - the roles played by public institutions and voluntary groups in society, and the ways in which citizens work together to improve their communities, including opportunities to participate in school-based activities.

You will need:

- PowerPoint – Lesson screens
- Journey image cards
- Agree/disagree/unsure signs
- Video – Greater Manchester teenager with asthma
- Case study: Greta Thunberg speech to MPs



Clean Air Introductory Lesson

ACTION

How might we reduce our own exposure to ambient air pollution?

Talk in 3s - Students consider a range of methods and feedback to the class.

How can we help reduce the production of air pollution around our school?

Talk in different 3 - Students consider a range of methods and feedback to the class.

What kind of action can we take at our school?

Inspiration for action: Greta Thunberg – how has she used her position to ensure the biggest impact?

Explain that students are the Clean Air Ambassadors for our school – they will be planning and enacting their own

campaign in school. Take them through the four different stages of the campaign, discuss what will happen at each of the stages.

1. Issue
2. Research
3. Action
4. Reflect, Celebrate and Share

Review the 5 clean air campaigns.

Which is the most pressing issue for us? Which would have the most impact on our school community?

Select one to run either using a vote or tease out in an open discussion.

Close of lesson - Arrange when to meet again to start campaign planning.

Your Impact

- Collect some baseline data on how and why people are currently travelling to school in different ways. You can use the class questionnaire as a guide for information to gather from students. The family questionnaire can also be used to gather information to help you in your campaigns.

Air Quality Monitoring

Use the air quality monitoring guide to help you start conducting your own practical testing OR if already set-up, collect this term's sample and compare for changes.



Air Quality Monitoring

Use the air quality monitoring guide to help you start conducting your own practical testing OR if it's already set-up, collect this term's sample and compare for changes.

Issue: Too many of us are travelling to school by car

Research:



- Source affordable and direct local public transport options ready to publish in a handout for your peers.
- How has air pollution impacted students at your school? Has it had an impact on rates of asthma?
- Research the health benefits (both physical and mental) of active travel. How does it impact our wellbeing?
- Research young people's speeches as a method of social action e.g. Greta Thunberg's speech.
- Review results of the class questionnaire to establish groups of students that can join together to travel in a more sustainable way (e.g. a walking/cycling/bus group).

Resources:

- Fundraising pack
- Global alternative travel screens to inspire alternative ways to travel to school – to open discussions and engage children/parents
- Ignite talk tips

Useful links:

- Leaflet samples
- Greta Thunberg speech
- UNICEF film – Just a Kid 2019
- Greater Manchester campaign film
- Free step counting apps – here are 10 to choose from!

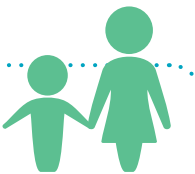
Fit & Fun Ways To Travel



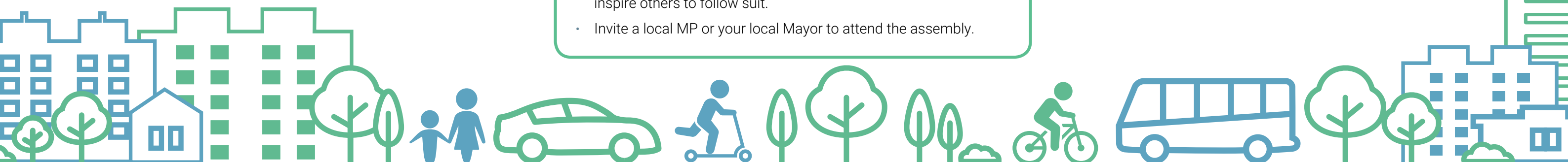
Reflect Celebrate Share

- Hold a whole-school assembly run by school Clean Air Ambassadors to celebrate the new travel methods adopted by pupils and staff.
- Present sustainable journey films at a local community event to inspire others to follow suit.
- Invite a local MP or your local Mayor to attend the assembly.

Action



- Use your research to publish a handout promoting alternative travel options to your peers or run a school social media campaign promoting these routes.
- Consult the fundraising pack for fun ideas to raise money for a scooter park, bike rack, helmets, high visibility jackets or specific school route bike sessions.
- Use the class questionnaire results to set up a working group that represents your school community (e.g. parents/governors/pupils/staff/local business) to implement most popular change (e.g. park and stride stops, walking groups).
- Create a student step counting competition (use a free step counter app to track steps walked).
- Students to present a 3-5 minute 'ignite talk' to their peers to persuade them to adopt a new method of travel. The aim is to ignite other pupils to take action!
- Use time lapse photography to create a video of your sustainable journey to school or make a point of view video showing the route taken at eye level.



Issue: Too much anti-social parking around our school

Research:



- Consult class questionnaire results to find out distances travelled by pupils. Is it walkable? Or do you need another solution?
- Find out the school community's needs and opinions. Invite the whole school community to vote for a clean air parking campaign that works for everyone (see Russell Scott Primary PCSO guidance for tips on how they ran their meeting).
- Research case studies of secondary schools who have used successful parking campaigns.
- Collect parking behaviour data. Design an appropriate way of recording parking behaviour outside the school gates (e.g. numbers of cars, how and where they park etc.) at drop off and pick-up times.

Resources:

- Russell Scott Primary PCSO case study
- Russell Scott Primary PCSO guidance
- Greater Manchester Parents' Healthier and Safer Parking Charter template

Useful links:

- Reverse Graffiti film – Alexandre Orion

Parking



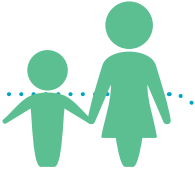
Reflect Celebrate Share

- Send a questionnaire to neighbouring residents to identify if there have been any improvements.
- Run an online survey to record number of car shares.
- Place thank you notes on safely parked cars.
- Write thank you cards to supporting businesses who helped provide safe parking and share in school newsletter.

Air Quality Monitoring

Use the air quality monitoring guide to help you start conducting your own practical testing OR if it's already set-up, collect this term's sample and compare for changes.

Action



Select and run a student PCSO team to promote safe parking around school. (see Russell Scott Primary PCSO campaign fact sheet). Use parking behaviour data results to use as evidence for your work.



Form a working party to run a safe drop-off campaign (see LivingStreets.com tips for park and stride) or walking friends campaign (where secondary students establish groups in each area that can meet up and walk to school together to make local friends and keep safe).



Liaise with local business to identify a safe free parking area or zone for parents to park and students to walk into school from.



Liaise with your schools parents and friends associations to promote car sharing. Sign-up the school to a free journey sharing app so parents can organise car shares with others in their area.



Create a reverse graffiti symbol (wiping clean from pollution stains near busy roads) to prevent bad parking inspired by artist activist Alexandre Orion (see film link of his work).



Ask parents to commit to and sign a Parents' Parking Charter (see resources) that includes a promise to park safely away from the school gates.



Issue: Too many idling cars outside our school gates

Research:



- Use the idling survey to monitor idling vehicles near school gates at pick-up for 5 days (to include school buses) See survey in idle-free school pack.
- Find stories about secondary schools that identify successful methods they have used that might work for you.
- Conduct online research to find out how idling cars and school buses increase air pollution around your school and the myths that drivers believe about needing to leave their engines running.

Resources:

- Idle-Free school pack
- Ignite talk tips

Useful links:

- Anti idling film
- Teen anti idling activist article



Engine Switch-Off



Reflect Celebrate Share

- Repeat the idling survey– what impact did you have?
- Share your news to parents in your school newsletter and congratulate and thank them.
- Share tips with a neighbouring school - can you present your ideas to local primary school?

Air Quality Monitoring

Use the air quality monitoring guide to help you start conducting your own practical testing OR if it's already set-up, collect this term's sample and compare for changes.

Action



- Consult with local school bus drivers/company to request engine-switch off if idling outside school gates for more than 10 seconds.
- Use idling survey to identify who to target with engine switch-off request slips.
- Form a student PSCO team to be outside the school gates monitoring drop-off times and handing out warnings/reminder slips.
- Each student presents a 3-5 minute 'ignite talk' to their parents/carers to persuade them to switch-off their engines instead of idling. The aim of the talks is to Ignite them into action!
- Hold a driver-contact event where school parents in cars around the school gates are approached and informed about your anti-idling campaign and informative idling tickets are handed out (see idle-free school pack).
- Ask parents to sign idle free pledges (see idle-free school pack).





Air Quality Monitoring

Use the air quality monitoring guide to help you start conducting your own practical testing OR if it's already set-up, collect this term's sample and compare for changes.

Issue: School delivery vans polluting school environment

Research:



- Find out the delivery schedule for your school.
- Use the delivery vehicle monitoring sheet to monitor school deliveries for 5 days (*size of vehicles, number of deliveries, time of day, time spent unloading, idling time, area parked etc.*).
- Look for local sustainable alternatives to standard delivery vans (*e.g. peddle bike deliveries, cargo/e-cargo bikes, consolidated deliveries with other schools etc.*).

Resources:

- Delivery vehicle monitoring sheet
- No idle policy template

Useful links:

- Last mile delivery Manchester



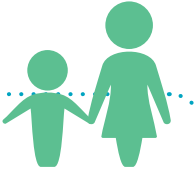
Clean School Deliveries



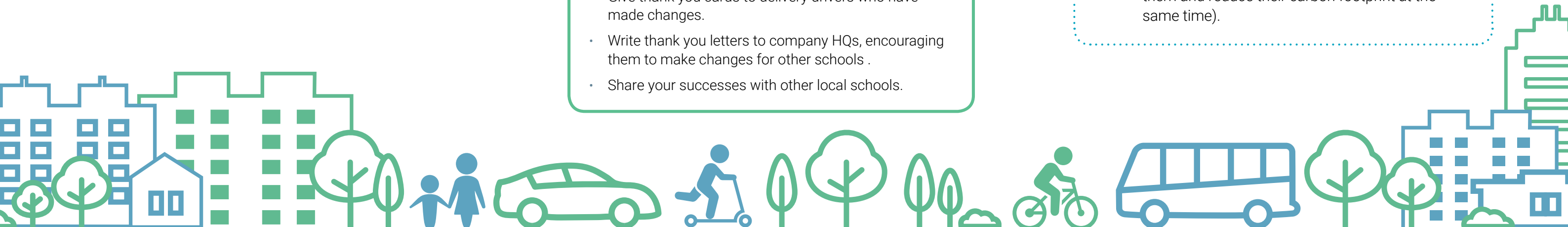
Reflect Celebrate Share

- Give thank you cards to delivery drivers who have made changes.
- Write thank you letters to company HQs, encouraging them to make changes for other schools.
- Share your successes with other local schools.

Action



- Contact your delivery providers to alert them to your 'clean delivery' time slots (before or after school or when children are inside the building).
- Initiate no idle policy for delivery vehicles and school buses.
- Coordinate and consolidate deliveries with other local schools to reduce distance travelled.
- Improve or expand storage facilities to allow for greater capacity, requiring less frequent deliveries.
- Request last mile delivery (e.g. using peddle bike for smaller items) to company via email, letter or phone call.
- Allocate clean unloading zones where vans and lorries have time to turn their engine off and park safely.
- Invent your own method to make school deliveries cleaner (e.g. sourcing greener delivery companies or finding a way to link more local suppliers so clusters of schools can support them and reduce their carbon footprint at the same time).





Issue: Too many families driving on the same busy roads on their journey to school

Air Quality Monitoring

Use the air quality monitoring guide to help you start conducting your own practical testing OR if it's already set-up, collect this term's sample and compare for changes.

Research:



- Discover the quietest routes for walking, scooting and cycling from areas less than a mile away and time them (e.g. routes away from busy main roads, through green spaces or with safe crossings and wide pavements).
- Investigate a suitable quieter route to use for a wellbeing walk that links a healthier mind and body to walking along quieter, green routes (e.g. back roads with less traffic, wide pavement that can fit children walking in pairs, limited crossings that are safe).
- Research the benefit of using quieter routes (e.g. Guardian article side streets).

Useful links:

- Article –Side street routes to avoid city pollution can cut exposure by half
- Map My Walk
- Wellbeing walk
- Real-time air quality index



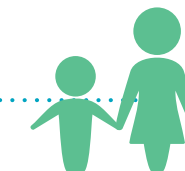
Quieter routes



Reflect Celebrate Share

- Conduct a questionnaire to establish who is using quieter routes.
- Show film about journey sharing trips at your school.
- Publicise successful quieter routes on school website for new Year 7 pupils to see and offer tips to each other.

Action



- Present quieter route options with visible timings to peers (webpage/presentation/film/animation).
- Establish a wellbeing walk (like at Kings Cross) that leads to the school with nature notices and footprints to follow.
- Find and promote alternative quiet routes for those who must travel by car. Incorporate a park and stride initiative or a no-driving pledge (to not drive one day a week or month) in order to discourage driving down quieter routes and instead to promote walking, cycling and scooting.
- Create map showing quiet routes for walking and biking with timings attached. Use Map my Walk to find alternative quiet routes.
- Sign up the school to a free journey sharing app so groups of pupils can find each other and share cycling, walking, public transport or car journeys.
- Make signposts to signal the quiet, less polluted routes to school.
- Make a film promoting journey sharing trips. This could include how a new friendship is formed, the safer routes to school and reduced exposure to air pollution.



Clean Air School Action Plan

Because every child should be able to breathe clean air, this guide helps school leaders to significantly improve air quality around a school. Together, a few hundred school leaders can protect the health of many thousands of children in Greater Manchester.

Spare time to complete such a plan may be scarce, so this Clean Air Plan is designed to make tackling air pollution straightforward. Just follow these three steps:

1. Review the 13 clean air actions in the tables below and select 2 to 4 actions that are appropriate for your school to focus on over the next year.
2. Complete the Action Plan grid to map out how to implement those actions. Don't forget to involve governors, staff and students in the team for implementing these actions.
3. Celebrate your achievements! Keep track of the progress your actions have made and celebrate them with the school community. Have more students started cycling to school? Has there been a reduction in idling vehicles? Let everyone know!

Please consult the campaign plans for help with implementing each of the individual 13 actions.

Ways of reducing air pollution at the school entrance:

1. Stop vehicles from idling near the school entrance.
2. Establish a suitable drop off point away from the main walking route.
3. Set an active travel challenge for families to promote cycling, scooting and walking.
4. Improve your school's bicycle and scooter storage to support cycling and scooting
5. Encourage car sharing for those who need to drive.
6. Hold a no car day to trigger people to try a new way to get to school.





Ways of reducing air pollution on school grounds:

1. Reduce the number of deliveries to school and make sure they arrive at quiet times.
2. Have a no idling policy on school grounds – especially for school buses.
3. Create a low emission zone around school to remind the wider community of the need to avoid the area or to drive cleaner.
4. Close the school road and hold a street party to show the impact of a car-free zone.

Ways of reducing students' exposure to air pollution:

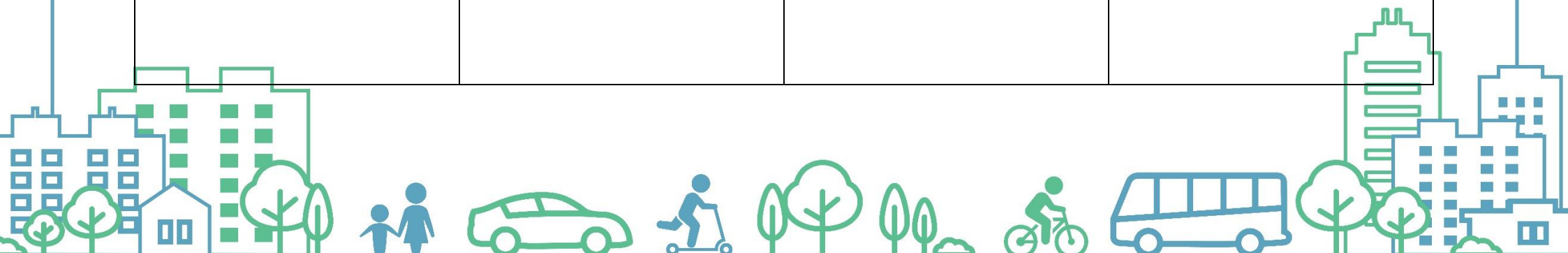
1. Train staff and families on the risks of air pollution and how best to avoid it. Share this knowledge through lessons and assemblies.
2. Share quieter routes to school with students and families so they know the least polluted ways to travel in.
3. Promote walking, cycling or scooting to school instead of driving as this reduces exposure to emissions (especially on quieter routes)

Selected actions for our school:



Action Plan:

ACTION	TIMELINE	RESPONSIBLE	FUTURE ACTION/ EMBEDDING
e.g. Reduce number of stationery deliveries from weekly to fortnightly	Starting from September	School business manager	Add to school procurement policy



School Calendar

Together we can help tackle air pollution! You can use this calendar to help you plan when to complete your campaigns and see what else is happening across the UK.

Term 1	
Public Campaigns	Your team's campaigns
<ul style="list-style-type: none">• Make your own Bike to School Week• Campaign for School Streets (Friends of the Earth)	<ul style="list-style-type: none">• Fit and Fun Ways to Travel
Term 2	
Public Campaigns	Your team's campaigns
<ul style="list-style-type: none">• Sustrans Big Pedal (March/April)	<ul style="list-style-type: none">• Engine switch off• Clean school deliveries
Term 3	
Public Campaigns	Your team's campaigns
<ul style="list-style-type: none">• Clean Air Day (20th June 2019)• Walk to School Week (Living Streets: 20th-24th May 2019)	<ul style="list-style-type: none">• Parking• Quieter routes



Air Quality Fact Sheet

Human activity is a major cause of air pollution, especially in large cities: human air pollution is caused by things such as factories, power plants, cars, airplanes, chemicals, fumes from spray cans, and methane gas from landfills.



Air pollution has a negative effect on the environment: it causes global warming (carbon dioxide), damages the ozone layer (methane gas and CFCs), and causes acid rain (sulphur dioxide).



Cycling or walking to school can expose you to less air pollution than driving to school.



Turning the engine off, rather than idling, when waiting in your car can reduce air pollution by 20-30%.



You can avoid high emission levels on a high pollution day by staying away from busy roads with lots of traffic when you walk to school.



Diesel vehicles are the main source of road-based nitrogen oxide emissions in Greater Manchester.



Air pollution can cause headaches, dizziness, nausea and shortness of breath. In children, it often causes more coughs and bronchitis.



Because children's lungs are still developing, air pollution can have a bigger impact on children's health than it does on adults.



Air Quality Fact Sheet

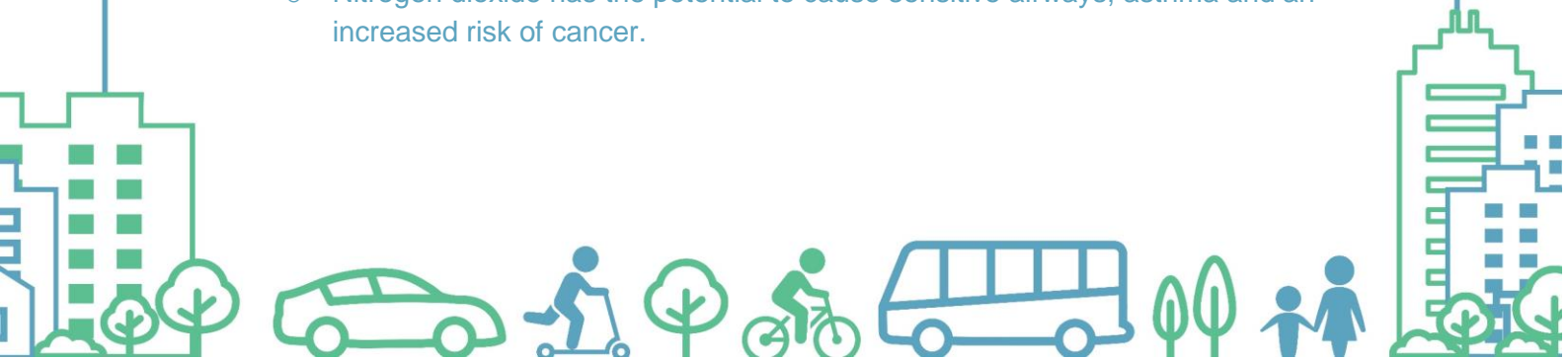
This fact sheet contains some extra information that may help you with your lessons and campaigns.

General:

- Air pollution comes from a range of sources, including some nearby, like vehicles, and some further afield.
- Pollution levels depend on a number of factors, including weather, location and time of day.
- Air pollution can be split into two categories: gases and particulate matter (PM).
 - Gases include nitrogen oxide, benzene, carbon monoxide, carbon dioxide and ozone.
 - PM are particulates of dust and liquid droplets suspended in the air.
- PM₁₀ and PM_{2.5} are particles that come from road traffic (metal, rubber, dust from road surfaces) or from building and industry, wind-blown dust, sea salt, pollens and soil particles – these particles cannot usually be seen with the naked eye.
- PM₁₀ are particles with a diameter of 10 micrometres or less and PM_{2.5} are particles with a diameter of 2.5 micrometres or less.
- On very high pollution days, it is best that children do not take part in strenuous outdoor activities – these days are very rare!
- Greening a space is a great idea to keep air pollution away from your school, but be aware that some types of trees and shrubs actually produce polluting compounds and could in fact contribute to air pollution!

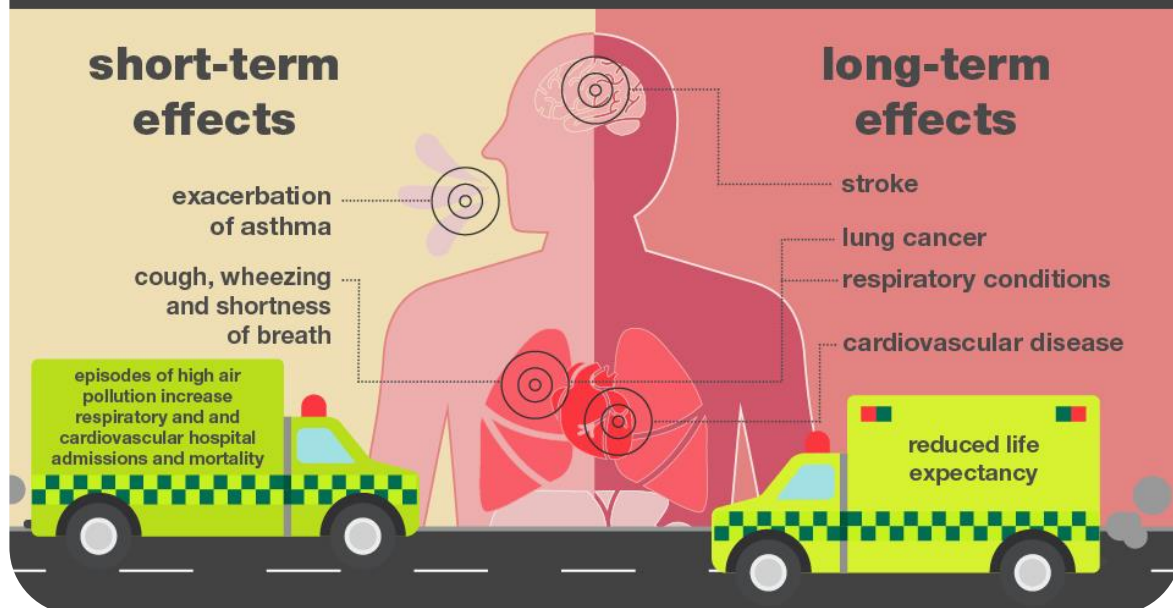
Health:

- Air pollution contributes to the equivalent of 1,200 deaths a year in Greater Manchester.
- Air pollution is the largest environmental risk to public health linked to deaths in Greater Manchester.
- Air pollution has the most impact on young children, as well as on the elderly and people with existing lung and heart conditions.
- If we tackle the air pollution pumped out by vehicles, our children could live six months longer.
- The impact of air pollution on our bodies:
 - Nitrogen dioxide has the potential to cause sensitive airways, asthma and an increased risk of cancer.



- Because children's lungs are still developing, air pollution can have a bigger impact on their health than it does on adults. There is a strong link between air pollution and the worsening of asthma symptoms, and it may even cause asthma in some people.
- Exposure to air pollution is also linked to more coughs and bronchitis.
- From an interview with Dr Colin Wallis (Great Ormond Street Hospital):
 - Lungs are not designed to breathe in pollutants – some of the small particle pollutants penetrate deep into the lungs and then cause an inflammatory response.
 - Lungs are sensitive – they cannot be repaired easily, and we cannot grow a new set, so the impact of pollutants on a child's lungs can lead to long term problems in adulthood.
- Air pollution in Greater Manchester increases hospital admissions and trips to A&E.
- According to the World Health Organisation (WHO), 4.2 million people die each year from air pollution.

Health effects of air pollution

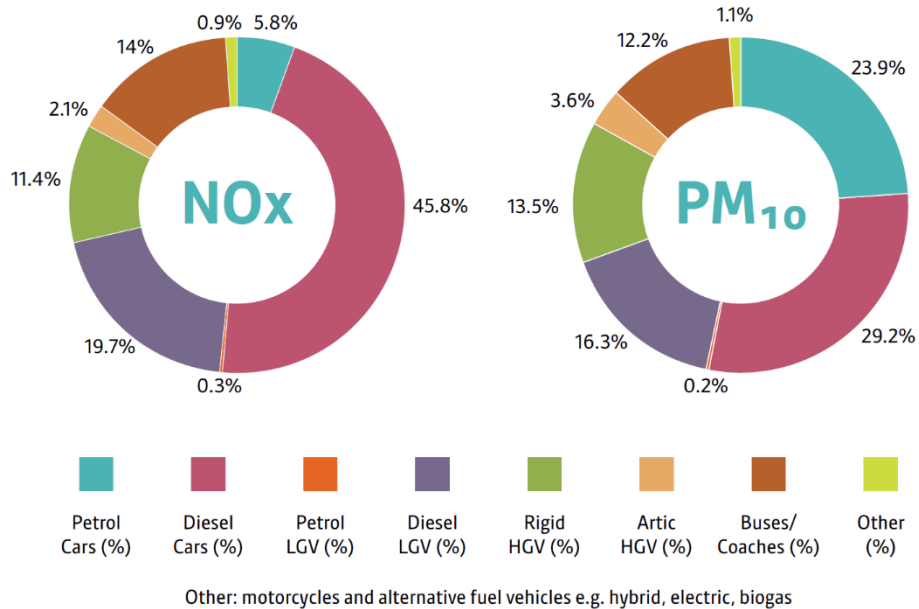


Campaign-relevant Facts:

Fit and Fun Ways to Travel:

- A combination of still air (low dispersal) and the morning rush hour (high emissions) mean the highest pollution levels are often in the morning – the afternoon rush hour is more spread out, leading to a more spread out peak of pollution levels and therefore overall lower levels of air pollution.
- Air pollution is usually lower at the weekend than on weekdays.
- Evidence shows that cyclists are actually often exposed to less air pollution than people travelling by car, taxi or bus.
- Diesel vehicles are the main source of road-based nitrogen oxide emissions in Greater Manchester:
 - Cars (46%)
 - Vans and light goods vehicles (20%)
 - Buses and coaches (14%)
 - Heavy goods vehicles (11%)

Proportions of NO_x (NO and NO₂) and PM₁₀ emissions from road sources (GM Air Quality Action Plan 2016)



Engine Switch Off:

- Turning off your engine makes a difference! In a study done by King's College London, no-idling action (i.e. turning off your engine when not driving) resulted in reducing air pollution peak concentrations by as much as 20-30% in high pollution areas. See the study [here](#).

Clean School Deliveries:

- Transport is the single largest contributor to air pollution in most cities. There are 4 million vans on UK roads, and vans are the fastest growing vehicle type: 96% of these vans are diesel fuelled.
- When it comes to harmful pollutants one van emits about five times more NO_x and over three times more PM_{2.5} particles per year than a car, mainly because of higher annual mileages and pollutant emissions rates for each kilometre travelled.

Green Routes:

- You can avoid high emission levels on a high pollution day by staying away from busy roads with lots of traffic when you walk to school.
- Diesel vehicles are the main source of road-based nitrogen oxide emissions in Greater Manchester:
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Created by Global Action Plan for Clean Air Greater Manchester.



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