Air Quality

"There's so much pollution in the air now that if it weren't for our lungs, there'd be no place to put it".

Robert Orben

The fourth strategic aim of the DfE's Sustainability and Climate Change Strategy is to create:

"A better environment for future generations: enhancing biodiversity, improving air quality and increasing access to, and connection with, nature in and around education and care settings.

What is air pollution?

Air pollution refers to the condition of the air around us and whether it contains pollutants (chemicals or materials that are not normally there). It is usually invisible but we can sometimes smell it.

The two main pollutants are:

Nitrogen dioxide (NO_2), a gas which is often produced after fuel is burnt and when you breathe it in, it can cause coughing, wheezing or difficulty breathing in the short term. Longer exposures may contribute to the development of asthma and respiratory infections.

Particulate matter (PM) are specks of solid material or liquid that are suspended in the air and most can only be seen with a microscope. All PM can be bad for our health when breathed in, but especially the very fine particles which can get deep into your lungs and then your blood and so be carried around the body to all your organs.

Children are particularly at risk from air pollution, as their immune systems, lungs and brains are still developing. Air pollution can affect children's physical health, their ability to learn, and even lead to death. Yet millions of children are still exposed to dangerously high levels of air pollution, as almost all UK schools are in areas above WHO air pollution limits.

UNICEF found "a worrying trend that children are being disproportionately exposed to pollution while they are on the school run and at school. "On average, children spend nearly eight hours at school - about 30% of their day. Yet during this time they receive nearly 44% of their exposure to air pollution." Take a look at this report from 2018 - The toxic school run - UNICEF

Establish the impact of your staff and pupil's journeys

We have created some ideas to help you to help you to:

- Reduce the air pollution from your own school
- Reduce air pollution caused by the school run
- Reduce the impact of localised pollution on the school community

Why not establish your personal impact using the clean air hub emissions calculator and make pledges for reduction. You could also share with staff and families.

Start by assessing the key air pollution sources affecting your school and identifying what you are already doing to mitigate them.

Air pollution audit			
School Name:			
Date:			
Is there a busy road next to the school		☐ Yes	☐ No
Is there a major source of air pollution near the school? i.e. industrial sites, busy roads, construction sites etc. within 150m of the school		☐ Yes	☐ No
What is the proportion of staff and students who drive to school?		Staff:	Students:
Do you use CO_2 monitors to monitor levels in classrooms?		☐ Yes	☐ No
Can all windows be opened in classrooms to let fresh air in?		☐ Yes	☐ No
Have you promoted active travel to pupils and staff?		☐ Yes	☐ No
Have you promoted car sharing?		☐ Yes	☐ No
Have you installed EV charge points to encourage staff to make the change to electric vehicles?		☐ Yes	☐ No
Have you implemented traffic restrictions near the school gate?		☐ Yes	☐ No
Have you invested in bicycle storage facilities?		☐ Yes	☐ No
Can your staff access a bike to work scheme?		☐ Yes	☐ No
Have you informed the school community about the impact of air pollution and given them ideas to help them play their part in reducing it?		☐ Yes	☐ No
Is air pollution covered in the curriculum?		☐ Yes	☐ No
Have you contacted your local council highways/ transport department to request support with reducing the impact of the school run on air pollution?		☐ Yes	☐ No
Is there a designated school street leading to your school?		☐ Yes	☐ No
Do you have a walking bus?		☐ Yes	☐ No
Have you planted a green screen (trees/ hedging) between the school and roads?		☐ Yes	☐ No
Do you use fragrance free and low VOC cleaning products and art supplies?		☐ Yes	☐ No

Establishing the impact of the school run, can provide you with a baseline and identify barriers and key target areas.

School run survey	
School Name:	
Pupil name	
Date:	
How did you get to school this morning?	☐ Car ☐ Public transport ☐ Walk ☐ Cycle ☐ Other
If you drive to school, how long do you usually park with the engine idling?	☐ Not at all, the engine is switched off immediately ☐ Less than a minute ☐ 2-5 minutes ☐ 5-10 minutes ☐ More than 10 minutes
Where do you park the car?	☐ On the road ☐ In a car park ☐ Other (please specify): ☐ N/A
How far away from school do you live?	
What stops you from walking / cycling to school?	☐ Too far to walk ☐ Poor weather ☐ Health ☐ Time ☐ Lack of safe walking/cycle route ☐ Lack of bike storage at school ☐ Lack of a bike ☐ Other (please specify): ☐ N/A

Establish the impact of your staff commute.

School run survey	
School Name:	
Staff name	
Date:	

How do you normally travel to school?	☐ Car ☐ Public transport ☐ Walk ☐ Cycle ☐ Other
If you drive to school, what is the distance travelled per day? Per week?	Per day: Per week:
If you drive to school, what vehicle do you use?	☐ Small petrol car ☐ Small diesel car ☐ Medium petrol car ☐ Medium diesel car ☐ Large petrol car ☐ Large diesel car ☐ Electric car ☐ Hybrid car ☐ Motorbike ☐ Other (please specify): ☐ N/A

The **tree equity score tool** can be used to identify the level of air pollution in your locality and might serve as a basis for work to improve air quality. Levels of Nitrogen dioxide (NO_2) and particulate matter (PM) are cross referenced with health, employment and tree cover to provide a priority score for tree planting in your area. https://uk.treeequityscore.org/

Working with staff and families to reduce the impact of the school run, will have additional health and wellbeing benefits. Walk to school week is a good time to implement initiatives - do this in the summer months to avoid poor weather. Consider engaging with Modeshiftstars to help your school engage in best practice for travel plans.

Your council may have funds available to support air quality improvement projects i.e for walking buses, bikeability training, bicycle storage etc. They may also be able to provide air quality monitoring equipment if external air pollution is causing an issue.

Making the change to fragrance free and low Volatile Organic Compound (VOC) cleaning products and art materials is not only better for the environment, but reduces localised air pollution in your buildings.

Plants in classrooms provide many benefits, including helping to reduce CO_2 levels, leading to increased concentration, reduced pollutants and increased humidity. They can also help to reduce noise levels!

Get involved in the Earthwatch Europe Tiny forest project, a citizen science project which consists of 600 trees planted densely in a tennis court sized plot, and the Green Earth schools programme which builds upon it.

Planting a green screen between the school and pollution source i.e. roads can reduce the air pollution reaching pupils and staff.

A bike to work or Electric vehicle salary sacrifice scheme may be offered by your Local authority or academy trust.

Keeping educational spaces well-ventilated can reduce disease transmission, improve pupils' alertness and concentration and can help to improve indoor air quality. Using CO_2 monitors in classrooms can enable staff to identify when CO_2 levels are rising and open windows to reduce it.

You could take part in the School's air quality monitoring for health and education project. https://samhe.org.uk/about

Further guidance and resources:

- School's air quality monitoring for health and education https://samhe.org.uk/about
- The Health and Safety Executive's (HSE's) guidance on how to improve ventilation in the workplace
- The UK Health Security Agency's (UKHSA's) guidance on using ventilation to reduce the spread of respiratory infections, including COVID-19
- The Royal Academy of Engineering's (RAE's) infographic on why clean air is vital to health and how to manage ventilation
- The CoSchools information on how CO_2 monitors can help create healthier schools
- https://www.groundwork.org.uk/wp-content/uploads/2019/08/Air_Quality_GI_Toolkit_for_Schools.pdf
- The clean air hub has audit and action plan tools https://www.cleanairhub.org.uk/clean-air-information
- The Global action plan Action for clean air | Schools have resources and a free online tool to help schools to create a clean air action plan.
- The Air quality in schools intervention toolkit has a range of interventions to reduce air pollution, with cost benefits, feasibility and effectiveness identified.
- About us | Trees for Cities
- Electric vehicle salary sacrifice guidance for academy trusts