

Leeds
Primary School

Clean Air Toolkit Key Stage 2



Sustainable travel and the benefits to Air Quality

This toolkit has been designed by Leeds City Council in partnership with London Sustainability Exchange to help you promote sustainable travel to school by teaching your pupils about Air Quality. The toolkit supports your school travel plan, contributes to Modeshift STARS and Healthy Schools Initiative and helps Leeds reduce its carbon emissions and work towards becoming a carbon neutral city.

We will help you and your pupils find out the answers to the following questions:

- What is air quality?
- How does it affect us?
- How do we measure it?
- Can we make a difference?

We have divided up this toolkit into four sections: explore, experiment, analyse and take action. All of our sections go together as a full unit of work but we have left room for you to be flexible if you just have time for a lesson or two.

Part 1: Explore

In part one of the toolkit, your pupils start by learning about the Great Smog of 1952. Your pupils will then learn about the basic make up of air, different types of pollutants, what causes them and what they do to human and environmental health. This will help them come up with imaginative best case and worst case scenarios for poor air quality. Your pupils also will become “Air Quality Detectives”, creating a baseline of attitudes at school and at home that they will attempt to influence over the course of this project.

Part 2: Experiment

In this part of the toolkit, your pupils will build on their learning from part one, moving from understanding what air quality is to finding out how to measure it. We have prepared an experiment using a hand held particle reader. **Please note, the hand held particle readers can be borrowed from the Influencing Travel Behaviour Team (contact the ITB Team on Tel: 0113 37 87306, Email: road.safety@leeds.gov.uk).**

Part 3: Analyse

In part three of the toolkit, your pupils will take all the information they have gathered from the experiment and surveys in part two and analyse the results. They will present their results in an attractive, easy to understand manner. Your class will discuss the results and think about their predictions from part two: are the results as they expected?

Part 4: Take action

In the final part of the toolkit, your class will think about communication, campaigning and encouraging behaviour change in their own lives, in the school and in their community. Your pupils will learn about the ways in which messages are communicated and analyse them for content, style and emotion. Your class will use this learning to think about how to communicate the importance of good air quality. They will assess a number of suggestions and select class, group or individual projects to take forward.

LINKS TO LEARNING:

This toolkit has been designed to deliver key learning objectives and curricular aims for Science and Geography at KS2. Part four also contains activities that build comprehension and composition skills required for English at KS2.

Additionally, this toolkit is ideal for use if your school is signed up to Modeshift STARS or Healthy Schools Initiative.

BEFORE YOU START:

Assembly notes

Before teaching your class using the lesson plan in part one, give a school assembly on air quality and links to idling vehicles (see Appendix 1).

In the assembly, you should tell your pupils that pollution from traffic outside the school grounds, including idling vehicles, could be making the air in their classrooms and playgrounds more dangerous to breathe.

Do any of your pupils have asthma? A study has found that up to 30% worldwide of all new asthma cases in children are caused by exposure to pollution.

Do any of your pupils play sports? Studies have found that pollutants from traffic significantly reduces children's lung capacity- and we need our lungs for running, jumping and being healthy both now and in the future.

Use the "Hands Up" travel survey in (Appendix 2) to get information about how your pupils and staff travel to and from school. Alternatively, you can complete the "hands up" travel survey with each class separately as part of registration or by sending children to survey each class.

Surveys

If you are not having the children complete this task ask teachers to conduct a HANDS UP PUPIL and STAFF SURVEY - see Appendix 2 for surveys.

ADDITIONAL ACTIVITIES:

If you have time to set additional activities during lessons, or a group of pupils who are particularly engaged, you can start an Air Quality Champion programme. Throughout this unit of work, we have suggested some supplementary activities that your Air Quality Champions can take a lead in. They can choose to undertake extra experiments and data analysis activities in parts one, two and three, and run campaigns to raise awareness or create positive behaviour change in part four. These activities can also be done as classroom or fieldwork activity involving all your pupils if you have extra time to spend on air quality in your school.

Part 1 – Explore

In this part of the toolkit, your pupils start by learning about a historical case of poor air quality: the Great Smog of 1952.

Next, they will find out just how dangerous modern air quality is compared to other hazards with an interactive “higher or lower” activity.

Your pupils will then learn about the basic make up of air, different types of pollutants, what causes them and what they do to human and environmental health. This will help them come up with imaginative best case and worst case scenarios for poor air quality.

Finally, your class will start to create a baseline of attitudes and behaviours around travelling to school by completing a simple survey about their own attitudes to travelling to school.

Curriculum links

- Science: undertaking scientific enquiries to answer questions about our world and human behaviour
- Science: exploring the impact of our environment on how our bodies function, including learning how pollutants can be harmful to the human body
- Geography: use fieldwork and observational skills to study the key human and physical features of their school, home and local environment

Materials requirement

- printed copies of worksheets one, two and three
- pens or pencils
- whiteboard and marker
- internet access (for viewing images)

Time requirement

One assembly to introduce the subject to the whole school, then one session of 50 minutes plus fifteen minutes of homework.

There is an optional Idling Survey activity that will take around half an hour, which could be completed at the beginning and end of the school day, school staffing permitting. Please note, you may need parental permission for children to take part in this activity.

Timing

Activity

5 minutes

Opener: Great Smog of 1952

To start the lesson, distribute **Handout 1: The Great Smog of 1952**.

Explain that smog is a kind of dirty fog. In 1952, the weather was very foggy. The fog mixed with lots of dirty smoke from people's coal fires and pollution coming out of factory chimneys. This mixture of weather and pollution created a very poisonous blend. The smog was so dirty and thick that it stopped traffic and gave lots of people serious breathing problems. Sadly, the Great Smog of 1952 killed over 4,000 people.

The terrible conditions and the deaths of people and farm animals made everyone very angry. The government responded by passing a new law that banned the dirtiest types of smoke and stopped factories and families using coal and smoky wood burners in the city.

10 minutes

Class activity: Higher or lower?

Tell your class that you are going to play a dangerous guessing game. Write "Air Quality" in the middle of your whiteboard with a vertical line and big arrows above it and below it. Use **Handout 2: Higher or Lower?** As a guide, ask your class to raise their hands if they think each of the different hazards is more dangerous (higher!) or less dangerous (lower!) than poor air quality or the other hazards already listed. Order students' responses on the whiteboard.

You may wish to group responses agreed table by table or take a note of the majority's answer. Once you have ordered all eight hazards you can reveal the real answers.

20 minutes

Group work: The air that we breathe

Use the results of the previous activity to prompt a short discussion. If necessary, use the following prompts to guide the discussion.

- Did they get the order right?
- Were there any surprises?
- Did your class expect poor air quality to be this dangerous?
- Does the air your class are breathing now look as polluted as it did in the Great Smog?
- What do they think modern pollution is?

Ask your class to take a deep breath and think about what is going into their lungs.

Air is a mixture of gases that we breathe in thousands of times a day. The mixture changes depending on where we are and what we (or others) are doing.

Can the class think of anything we do that might change the quality of the air around us?

Distribute **Handout 3: The air that we breathe** and talk your students through the basic make up of air and the pollution that might be in it. Ask your students to work in pairs or small groups to complete the activity on the worksheet.

When encouraging them to imagine the very worst place and the very best place for air quality, encourage them to think both realistically (a bus station) and fantastically (a bus station on top of a volcano).

Draw a line down the centre of your whiteboard, labelling one half “worst” and one half “best”. Ask each group in turn to describe their worst place from the last activity, noting key attributes on the “worst” half of your white board.

If needed, prompt them to provide explanations for their decisions. After each group has described their places, ask the rest of the class if they can think of local places with those key attributes.

They may not find any active volcanoes but there may be places with lots of idling traffic, industrial areas or power stations. Add any locations your class think of to your whiteboard.

Next, ask each group to describe and explain their best places, noting key attributes on the “best” half of your whiteboard. Again, after each group has finished, ask the rest of the class if they can think of local places with similarities to their ideal Air Quality locations, adding any locations to your whiteboard. Finally, take a picture of your whiteboard or make a note of the responses - you’ll need this for a later lesson.

10 minutes

Worksheet: Routes to school

Distribute **Handout 4: Routes to school** and ask each of your pupils to fill in the survey. Explain that the answers to this survey will combine with the school’s assembly answers to help them find evidence of people changing their habits in ways that will help improve local Air Quality.

Once your pupils have filled in the survey, collect the sheets and put them away until next lesson.

5 minutes

Air Quality Detectives

Tell your class that their homework is to become an “Air Quality Detective”. Each of them will be exploring their school route, investigating the local area and questioning their family. Distribute **Appendix 3 Air quality detectives** Parent Survey and talk them through it. Explain that next time you have an Air Quality lesson they will report back on their investigations!

Additional activity for Part 1:

Idling survey – Handout 5

Is car idling contributing to air pollution around your school? 'Engine Idling' is when car engines are left running for over one minute while not moving. Idling wastes fuel and contributes to local air pollution and climate change. You can monitor idling by counting the number of vehicles outside your school that are idling. Parents dropping off or picking up or children at the start or end of school could be once source of engine idling. You will be counting cars in two 15 minute blocks.

1. In a group of three, choose who will be:
 - a) **Observer:** looks for parents' cars that are idling and not idling and tells the Timer.
 - b) **Timer:** uses a stop watch to time if cars have been idling for at least two minutes.
 - c) **Recorder:** puts one dash in the column 'Number of cars idling' every time the Observer and the Timer find an idling car, and one dash in the column 'Number of cars not idling' every time the Observer spots a parked car that is not idling.
2. At the end of 15 minutes, the Timer tells the Observer to stop counting and the Recorder writes the finish time in the column 'End Time' (e.g. 8:45 am). Add up the number of cars idling and not idling and record this in the 'total' column.
3. After a 1 minute break, you can swap jobs. Repeat steps 1-6 and record your findings in the second row.
4. When you finish counting cars for the second time, add up all the cars idling and put this number in the 'total, column on the bottom row. Add up all the cars not idling and put this number in the 'total' column on the bottom row.
5. Steps 1-4 can be repeated again in the afternoon.



Part 2 – Experiment

Hand held particle reader

You will need to book out a hand held particle reader from the Influencing Travel Behaviour Team (contact the ITB Team on Tel: 0113 37 87306, Email: Road.safety@leeds.gov.uk), and you will find instructions on how to use the reader in this Toolkit (Handout 6).

Firstly identify between 4 and 10 locations in and around your school where you would like to investigate how many vehicles are parked and potentially idling, and thus how many NO₂ particles are present. Decide at what time you will be taking the reading. You will need to record the particle reading at each location at the same time on each day over 1 week. Locations should include outside/inside the school gates where parents drop off children at the start and close of the school day. It could also include your school playground, in a classroom, or a nearby busy road. You could also take readings inside a car where the car in front of you is 'idling' and compare if there are more particles in the car or if you are on the pavement walking past the car. Record your findings on **Handout 7**.

You will also need to supplement the work using the particle reader with other surveys, such as the idling survey in Handout 5, or the traffic survey in Handout 7.

If you choose not to use the particle reader, you will need to use the idling survey and traffic survey to provide you with data to analyse for Part 3.

Part 3 – Analyse

In part three of the toolkit, your pupils will take all the information they've gathered in from the experiments / surveys in part two and analyse the results. They will present their results in an attractive, easy to understand manner. Your class will discuss the results: are the results as they expected?

Finally, your class will start to think about planning a course of action based around their results. They will think about how to make a positive change in their local air quality by encouraging drivers not to idle, or to leave their vehicles at home, thinking in terms of both the big picture and small steps they can personally take. Your pupils will think about who they need to engage in order to make this change happen and what the best ways of reaching those people are.

BEFORE YOU START

Make sure you have the results of your hand held reader experiment and / or idling and traffic surveys.

Curriculum links

- Science: planning scientific enquiries of different types to answer questions
- Science: recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why
- Science: taking measurements using a range of scientific equipment
- Geography: use fieldwork and observational skills to study the key human and physical features of their school, home and local environment

Materials requirement

- printed copies of the handouts- particle readings / idling survey / traffic survey
- pens, pencils or stickers
- whiteboard and marker
- A4 printed maps of the area
- one larger map of the area for a display version of the results

Time requirement

One session of 50 minutes, plus an extra thirty minutes per additional location identified.

Timing	Activity
10 minutes	<p><u>Opener: Information is beautiful (https://informationisbeautiful.net/)</u></p> <p><u>If completed</u> display your findings of the hand held readers, this could be by using Excel graphs or infographics on your screen or interactive whiteboard. Explain that infographics, made by people called data journalists, are creative ways to look at information like the data you have generated as part of your experiment. Show examples e.g. the Information is Beautiful website or any book by McCandless. Do your class think it makes the data sets simpler to understand or do they think the graphics confuse things?</p>
30 minutes	<p><u>Group activity: Data analysis</u></p> <p>Tell your class that one of the most important parts of an experiment is analysing the results and communicating your findings. Today, your class will create a number of reports and visuals that show the results of the last air quality lesson.</p> <p><u>Mapping air quality</u></p> <p>Ask your class to think about the results:</p> <ul style="list-style-type: none"> • Do the results vary across different locations? • Can they identify any patterns? • Are they surprised by any of these results? <p>Now the basic results are mapped, ask your class what else they can add to display their findings in the best way. They should think about how to display the data in a clear way and what kind of information about the experiment or the local area would be useful. Tell your class that the results are a snapshot of a one week period, and that the accuracy of the readings mean that the results can only be considered indicative rather than inclusive.</p>
10 minutes	<p><u>Close: What now?</u></p> <p>Once your class have finished analysing their data, making their maps and discussing the results, move the conversation towards communication and action. Write the following starter questions on the whiteboard, and ask your pupils to brainstorm responses to each:</p> <ul style="list-style-type: none"> • What can we do? • Who should we tell? • What should our school do next? <p>Prompt them to think about bigger societal or futuristic changes for the first question (electric vehicles, banning idling). For the second question, they should think about people in positions of power and the wider community. For the final question, ask your class to come up with achievable suggestions, including behaviour change goals (car sharing, walking or scooting to school).</p> <p>As homework, ask your pupils to be extra observant and make notes of a message that catches their eye over the next few days. That could mean cutting out an article in a magazine or newspaper that they liked, taking a picture of a bus stop advert that was visually appealing, copying a bit of graffiti with an interesting message or describing a poster for an event that they wanted to go to.</p>

Part 4 – Take Action

Incentive - Scoot to school

Inform your pupils that your school have agreed to take part in an initiative to encourage more drivers to stop idling, and where possible encourage pupils and their parents to travel to school sustainably by using active travel methods. Walking, scooting and cycling are fun and active ways of travelling to school and help reduce congestion outside the school and improve air quality. Inform the pupils and staff that they should try to use active travel methods where possible and also encourage more pupils in their school to try to do the same.

Ask your pupils

1. If a competition offering a reward between classes/schools for the most pupils using active travel would encourage more pupils to walk, scoot and cycle?
2. What would prevent them from using active methods of travel?
3. What incentives would most encourage them to walk, scoot or cycle to school, rather than travelling by car?

Use the routes to school survey as baseline data, ask pupils to analyse results after pupils have learned about air quality issues to see if there has been a shift from pupils travelling to school by car to using active travel methods.

Encouraging behaviour change

In this session, your class will think about communication, campaigning and encouraging behaviour change in their own lives and in the community.

Using the article, advert, poster or image they found for homework, your pupils will then think about the styles in which messages are communicated. They will analyse their chosen message for content, style and their emotional reactions.

Next, your class will use this learning to think about how to spread the message about the importance of air quality and sustainable travel. They will assess a number of suggestions and select class, group or individual projects to take forward.

This final activity builds on the previous learning and asks pupils to analyse their routes to school, then map cleaner walking routes as alternatives.

Curriculum links

- Science: reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations
- Science: showing results in oral and written forms such as displays and other presentations
- Geography: use fieldwork and observational skills to study the key human and physical features of their school, home and local environment using maps and plans
- English: (comprehension) discuss and evaluate how writers use language
- English: (composition) identify an audience for and purpose of the writing

Materials requirement

- printed copies of the worksheets
- newspapers or magazines
- computer with internet access
- pens or pencils
- scissors
- whiteboard and marker

Time requirement

This lesson takes 50 minutes, but you may wish to extend the activities started in it over another lesson. You could also continue the activity as part of your school travel plan.

Timing	Activity
15 minutes	<p><u>Group activity: Communicating with style</u></p> <p>The homework assignment from the last lesson asked your pupils to make note of a message that caught their eye: an article in a magazine, a bus stop advert, graffiti or an event poster. You can also provide newspaper clippings, magazine adverts or images from the internet.</p> <p>Distribute Handout 8: Communicating with style. Tell your class that professionals like copywriters and designers spend a long time thinking about how they are going to get their message across using words, images or video. They often use specific ways of saying things to get into our minds and get a reaction.</p> <p>Ask your class to get into groups and, using the worksheet as guidance, analyse the reasons each pupil chose the examples they did. They should carefully consider what makes that message effective or interesting:</p> <ul style="list-style-type: none">• Text analysis: What kind of words does it use? Positive, negative, persuasive, bossy or something else?• Emotional response: How does this message make you feel?• Effectiveness: Does this message do what it sets out to do? What could it do differently?
20 minutes	<p><u>Group activity: Taking action</u></p> <p>Ask your class to think back to the beginning of the lesson. Using the insight they've just gained on creating interesting messages, do they think they can positively impact the area in which they live?</p> <p>What's their message? Explain how travelling to school sustainably affects air pollution – less cars means less idling. Educating / encouraging drivers to avoid idling, etc.</p>

Share **Handout 9: Taking action**. These are just some examples of actions they could take as a class, as groups or as individuals. Ask each group to cut up the worksheet and choose two actions: the one they would find the most fun and the one they think would make the most difference.

Ask them to also come up with one new suggestion. Remind them to think about their message: do they want to tell people to avoid idling, pollution, drive less and walk more, use public transport more?

After they have done this, ask each group to feed back to the class, then vote on the top three ideas to take forward.

5 minutes

Close: What Next?

Your class have learned about air quality, carried out experiments, analysed the data and thought about what to do about it. You now need to decide as a class what the next steps will be.

Tell us your story!

How to write a case study

You can share your project using the template below to help you write case study.

- **Project name:**
(e.g. name of community group/school group)
- **Background:**
(overview of project - how was it established, where it will be and how long it will run for?)
- **Aim:**
(what did you achieve at the end of this project and what do you still hope to achieve?)
- **Outline of project:**
(further details of project, e.g. what did you do, step by step?)
- **Headline results:**
(what were the main lessons you learnt?)
- **Findings:**
(what did the results show?)
- **Barriers Faced:**
(what challenges did you face during the project?)
- **Key Successes:**
(what were the project's achievements? e.g. reaching out and creating awareness in local community)
- **Summary:**
(brief overview, what have you learnt? what would you change? etc.)
- **Next Steps:**
(how will you use the information you learnt from the project & communicate your message?)



Handouts and Appendices

Handouts:

- Handout 1: The Great Smog of 1952
- Handout 2: Higher or Lower
- Handout 3: The air that we breathe
- Handout 4: Routes to School
- Handout 5: Car idling survey
- Handout 6: Instructions and recording sheet for hand held particle reader (available to borrow from LCC)
- Handout 7: Traffic survey
- Handout 8: Communicating with style
- Handout 9: Taking action

Appendices:

- Appendix 1: Assembly notes
- Appendix 2: Hands up survey
- Appendix 3: Parental consultation



HANDOUT 1: The Great Smog of 1952

On Friday 5 December 1952, a thick yellow smog brought the capital to a standstill for four days and is estimated to have killed more than 4,000 people. London's air may appear much cleaner today, but is still dangerously polluted. The coal pollution that caused the infamous 'pea soupers' has been replaced by invisible pollution – mainly from traffic fumes – resulting in 13,000 early deaths each year in the UK and 4,300 in London. Government estimates are that 24,000 people a year had their lives shortened as a result of air pollution.



A London Transport inspector holding a flare leads a bus out of the terminus at Aldgate East as dense fog blanketed London, causing widespread traffic chaos. The great smog stopped traffic and trains, theatres and cinemas closed because the audience could not see the stage, prize cattle died at Smithfield show at Earl's Court, and the undertakers ran out of coffins.



Morning traffic at Blackfriars, London, almost at a standstill because of the blanket smog. There had been smogs before, in every major conurbation. But London was the world's biggest city at the time and nearly all of its 8 million inhabitants used open coal fires. The blanket of cold air from the continent which became stationary over the capital caused the warm, smoke-laden air from homes and power stations to cool and fall back to Earth. It created a blanket of sulfurous smog so dense that visibility was less than half a metre.



Heavy smog in Piccadilly Circus, London. The government's policies were at least partly to blame. To maximise revenue the UK was exporting its clean coal and keeping the sulphur-laden 'dirty' coal for UK power stations and domestic fires. The result was a combination of soot laden air and droplets of sulphuric acid lying in a 200ft-deep blanket across London, leading to the worst smog ever recorded.

The 'pea souper' brought about the first successful air pollution laws anywhere in the world.

The great smog was so thick people that could not see their feet. Some of the 4,000 who died in the five days it lasted did not suffer lung problems – they fell into the Thames and drowned because they could not see the river.

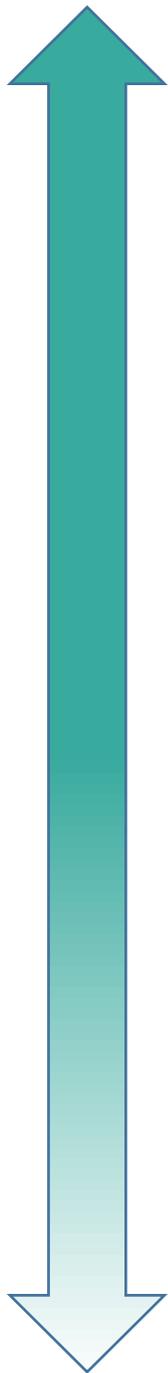


2 January 1954: Arsenal goalkeeper Jack Kelsey peers into the fog, searching for the elusive ball. The fog was so thick the game was eventually stopped. Legislation that followed the great smog of 1952 included the City of London (Various Powers) Act of 1954 and the Clean Air Acts of 1956 and 1968. These acts banned emissions of black smoke and decreed that residents of urban areas and operators of factories must convert to smokeless fuels

In the Kirkstall Road area of Leeds, the sulphur dioxide concentration was greater than that registered in London in 1952. At 5,185 micrograms per cubic metre it was the highest ever registered in the city.



HANDOUT 2: Higher or Lower?



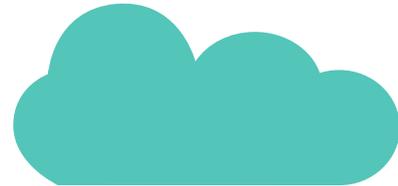
MOST DANGEROUS

SMOKING

Smoking is responsible for 96,000 deaths a year in the UK, mainly from cancer and heart or lung problems.

AIR QUALITY

In the UK, 40,000 deaths a year are linked to a number of different types of poor indoor or outdoor air quality.



OBESITY

In the UK, obesity and complications arising from obesity were responsible for 34,100 deaths in 2015.

TRAFFIC ACCIDENTS

1,775 people died because of traffic accidents in the UK in 2015.

DROWNING

Around 200 people accidentally drown each year in the UK.

BEE STINGS

Five people a year die because of bee or wasp stings in the UK.

LIGHTNING

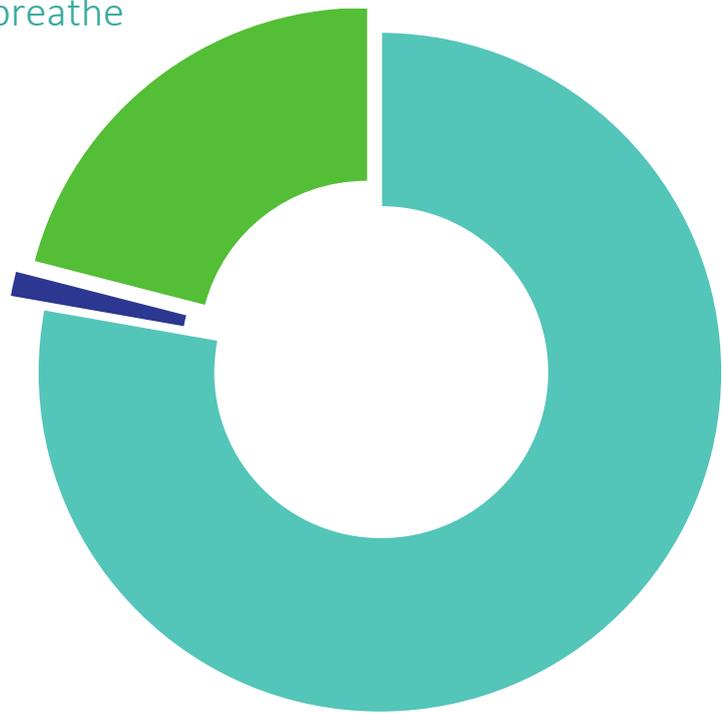
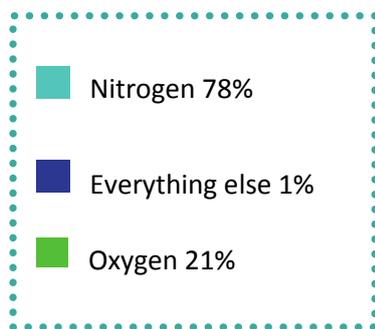
30 to 60 people are struck by lightning each year in the UK, but less than five die as a result.

SELFIES

No deaths in the UK were caused by selfies. However, there were 28 selfie-related deaths worldwide in 2015. That's 20 more than deaths than were shark-related!

LEAST DANGEROUS

HANDOUT 3: The air that we breathe



99% of our air is made up of nitrogen and oxygen, gases that are friendly to humans. However, an increasing amount of the remaining 1% of air is made up of harmful substances called pollutants. Too many of these pollutants create poor air quality. Air quality is a measure of the healthiness of our air.

We pollute our air in lots of different ways. When cars, vans or buses burn fuel in their engines, polluting fumes come out of the exhaust pipe. Some houses use coal, wood or gas fires to keep warm or cook, which produces polluting smoke. Most electricity is made in power stations that burn coal, oil and gas. These examples are all caused by humans.

However, pollution can also come from natural sources, such as volcanoes or pollen. Read the descriptions of five types of pollution below. The first two types of pollution on the list (nitrogen dioxide and particulates) are the most concerning in Leeds.

- Nitrogen dioxide comes from car exhausts, burning fuel in power plants, cigarettes and thunderstorms. You can find lots of it in cities during rush-hour traffic. It is dangerous for humans, especially people with asthma.
- Particulates aren't gases but lots of bits floating around in our air, including aerosols, smoke, fumes, dust, ash and pollen. Particulates get into our lungs, contributing to asthma and lung disease.
- Carbon monoxide comes from burning fossil fuels. You'll find it wherever there are cars, taxis, buses, or fires. It causes headaches, fainting and eventually suffocation.
- Carbon dioxide comes from humans (and other animals) breathing out. At high enough doses it has the same toxic result as carbon monoxide - and it's also very bad for the planet. Increased carbon dioxide is the reason a room filled with people feels stuffy (besides temperature). Other sources of CO₂ are fires, volcanoes, cars and aeroplanes.
- Sulphur dioxide is a smelly but colourless gas that come from power stations and volcanoes. It combines with water in the air to produce acid rain.

Where might you find poor air quality? Imagine the very worst and very best places and describe them here.

HANDOUT 4: Routes to school

Name: Year group:

Class: School:

Please circle: Girl Boy

Age: 5-6 7-8 9-10 11+

What is important to you on your route to school?

Reason	Rank 1 to 6 1 =most 6= least Use each number once
Being safe	
Being on time	
Being with friends family	
Good exercise/healthy	
Having fun	
Saving Money	

What is worrying about your route to school?

Reason	Rank 1 to 6 1 =most 6= least Use each number once
It's too slow	
It makes me late	
It's dangerous	
It's boring	
It's expensive	
It's too polluted	

What do you like about your route/Journey to school?

1.
2.
3.

What don't you like about your route/journey to school?

- 1.
- 2.
- 3.

How do you usually travel to school?

Walk	
Scooter	
Cycle	
Car or van	
Car or van with someone who does not live at your address	
Bus	
Rail	
Other	

How would you like to travel to school?

Walk	
Scooter	
Cycle	
Car or van	
Car or van with someone who does not live at your address	
Bus	
Rail	
Other	

Thank you for completing our survey

HANDOUT 5: Idling Survey

Idling Survey Record Form

School: Date:

Location:

Supervisor:

Observer:

Timer:

Recorder:

Start Time	End Time	Number of cars idling	Total	Number of cars not idling	Total

Total number of cars idling:

Total number of cars not idling:



HANDOUT 6: Instructions for using your particle reader

Please note, the hand held particle readers can be borrowed from the Influencing Travel Behaviour Team (Subject to availability). Contact the ITB Team on Tel: 0113 37 87306, Email: road.safety@leeds.gov.uk.



To switch **on** press the OK button and keep your finger on the button for 3 seconds. (You will see the seconds counting down on the reader).

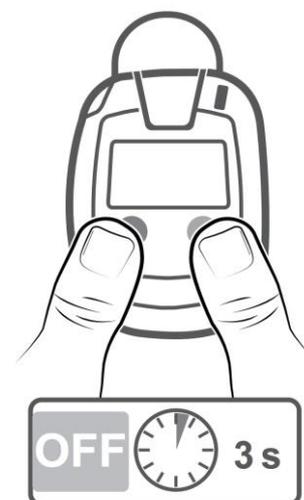


Once you have switched on the device it will automatically revert to the NO2 reader

To switch **off** press both buttons down at the same time for 3 seconds. (You will see the seconds counting down on the reader).



Record your findings on the sheet provided



HANDOUT 7: Traffic survey

Time: Date:

Location:

School: Year and class:

Transport type	Number seen	Total
Car		
Bus		
Lorry		
Van		
Motorbike / scooter		
Cycle		
Walk		

Handout : Traffic Survey NO2 readings

Time: Date:

Location	Highest NO2 Reading
Classroom	
Outside school during the day	
Outside school during the start of a school day	
Outside school during the end of a school day	
Playground	
Traffic lights	
A busy road	

**ADD locations*

NB remember to use the Green Cross Code when crossing the road

THINK : STOP: LOOK: LISTEN

Wear a high vis jacket

STAND ON THE PAVEMENT: DO NOT STAND IN THE ROAD

HANDOUT 8: Communicating with style

First impression

Why did you choose this message?

Image analysis

What kind of visuals does it have? What colours is it using?

Text analysis

What kind of words does it use? Positive, negative, persuasive, bossy or something else?

Emotional response

How does this message make you feel?

Effectiveness

Does this message do what it sets out to do? What could it do differently?

HANDOUT 9: Taking action

- ❖ **BE A STAR**
Sign up your school to Modeshift STARS (Sustainable Travel and Recognition for Schools).
- ❖ **GO GREEN**
Introduce a Go Green reward scheme.
- ❖ **PUPIL POWER**
Introduce the School Travel Ambassador scheme, where pupils promote sustainable and active travel.
- ❖ **CLEAN AIR DAY**
Take the pledge to improve clean air around your school!
- ❖ **ADVERTISING CAMPAIGN**
Plan, create and run an advertising campaign in your school, at the school gates, or in your local community. Make posters using persuasive writing.
- ❖ **SUMMER FAIR**
Take your findings public and host a stall at your summer fair to spread the word about air quality.
- ❖ **WALKING BUS**
Start a walking bus: where children and volunteers walk in a group, picking up or dropping off 'passengers' at specific 'bus stops' on their school route.
- ❖ **PARK and STRIDE**
Introduce a park and stride for pupils that live too far to walk or cycle to school, where parents/carers park a minimum of 500mtrs away from the school entrance and walk/scoot into school.
- ❖ **PHYSICAL ACTIVITY**
Take part in Leeds City Council's Bike to School week, Walk to School week or Scootember.
- ❖ **CAR FREE DAY**
Arrange a day where everyone leaves their car at home and travels to school sustainably.
- ❖ **PTA Power**
Ask your Parent Teacher Association or Governors if you can give them a short presentation at their next meeting - can they help in your quest to promote sustainable travel and improve air quality?
- ❖ **Walkit.com**
Log on to www.walkit.com select 'Leeds' and enter your home postcode and the school postcode. This will plan your route and will tell you the distance you have travelled, the time it takes, calories burned and CO2 saving.

Appendix 1: Assembly notes

There are many activities in our day to day lives which contribute to air pollution. Air pollution can be caused when we burn fossil fuels, such as coal, natural gas, petrol or diesel. We use these energy supplies for all sorts of things, from cooking and washing, to lighting and heating our homes and schools, and travelling by car.

The most concerning pollutants in the air are nitrogen dioxide (NO₂) and particulate matter (PM), or particulates. Other pollutants can include ozone (O₃) and sulphur dioxide (SO₂).

Nitrogen dioxide (NO₂): Breathing this in can irritate and damage the lining of the lungs. You can't see or smell NO₂ in the air, except in very warm weather when it sometimes combines with other chemicals in the air and makes the sky look hazy and brown.

Particulate matter (PM): Particulates are tiny particles of dust, soot or liquid which are too small to see. When you breathe these in they can sometimes go deep in to your lungs and the smallest can even pass into the bloodstream.

Air pollution in the past – the Great Smog in London

Even before there were so many cars on the roads, London suffered from the effects of air pollution. Since the Industrial Revolution, in the 18th century, factories sprang up, producing pollution in the form of smoke.

When smoke and fog mixed together, they made 'smog', which made the air hard to breathe, and also makes it difficult to see. Smog was very bad in 1952, a period of time which became known as the Great Smog. During the Great Smog in London, around 8,000 to 12,000 people died from causes related to the levels of pollution in the air.

Air Pollution in the present

The biggest problem for air pollution today is the emissions from road transport particularly vehicles that use diesel fuel. Even the newest diesel cars can emit 5 times more Nitrogen Dioxide (NO₂) particles than petrol cars. Unlike the great smog in London in 1952 today's pollution cannot always be seen, NO₂ is invisible and odourless and particulate matter (small particles) are too small to be seen. Many of the sources of air pollution such as burning fossil fuels also emit greenhouse gasses and contribute to the climate emergency.

Appendix 2: Hands up survey ‘Pupil’

Conduct a “hands up” travel survey during your school assembly, recording the responses in the tables below. This will give a baseline of data, letting you see your progress as your Air Quality projects go on.

Survey date: Number of pupils present:

School year(s) surveyed: Class(es) surveyed:

How do you **usually** travel to school?

Type of transport	Count
Walk (including, rollerskates, skateboard, etc)	
Cycle	
Scooter	
Car or van to the school entrance (not sharing)	
Car or van to the school entrance (travelling with others)*	
Park and walk (not sharing)	
Park and walk (travelling with others)	
Bus	
Rail	
Other	
Total	

* People who do not live at your address

How would you **most like** to travel to school?

Type of transport	Count
Walk (including, rollerskates, skateboard, etc)	
Cycle	
Scooter	
Car or van to the school entrance (not sharing)	
Car or van to the school entrance (travelling with others)*	
Park and walk (not sharing)	
Park and walk (travelling with others)	
Bus	
Rail	
Other	
Total	

* People who do not live at your address

Appendix 2: Hands up survey 'Staff'

Conduct a "hands up" travel survey during your staff meeting, recording the responses in the tables below. This will give a baseline of data, letting you see your progress as your Air Quality projects go on.

Survey date:

School year(s) surveyed:

How do you **usually** travel to Work?

Type of transport	Count
Walk	
Cycle	
Car or van (not sharing)	
Car or van (travelling with others)	
Bus	
Rail	
Park and Ride	
Other	
Total	

How would you **most like** to travel to work?

Type of transport	Count
Walk	
Cycle	
Car or van (not sharing)	
Car or van (travelling with others)	
Bus	
Rail	
Park and Ride	
Other	
Total	

Appendix 3: The school journey

Parental Consultation

Please complete the following questions on your child's journey to school.

The information you give us will be used to improve school journeys/air quality around your school

.....

Q1. How far from school do you live?

Under 1 mile

1-2 miles

Over 2 miles

.....

Q2. How does your child usually travel to school?

Walk

Scooter

Cycle

Car Share

Car

Bus

Other

.....

Only complete this section if you use your car for the school journey

Q3. What is your usual destination after dropping your child off in the morning?

a. Work (every morning)

b. Work (some mornings)

c. Home

d. Other

If you travel to work after dropping your child at school, do you travel by car into Leeds City Centre? (or within a 1 mile radius).

Yes

No

.....

Q4. Would you be willing to take part in any of the following initiatives to support the School Travel Plan and improve air quality? *(Please circle)*

Walking bus

Car sharing

Park and stride

5 minute walk zones

Cycling to school

School walking week

School bike week

Safe parking promotion

Reward schemes

Walk Once a Week (WOW)

No Idling Zone

Scoot to School

Parking pledge

Incentives to walk/cycle

School Travel Ambassador

.....

Q5. If you think that part of your child's journey is dangerous, tell us where and why.

.....

.....

.....

.....

.....

Q6. Are you concerned about the impact of air pollution on your child's health?

Not concerned

Slightly concerned

Very concerned

Don't know

.....

If you have any other suggestions on how the school journey /air quality could be improved please share these ideas with us.