Air Quality Education Activities Overview

## **Introduction** Background information for teachers and school leaders

**Review of other relevant resources**Summary of resources available online from other local authorities, charities and NGOs around air quality education. Links to documents available on the schools’ extranet site.

## **Assemblies**

Themed assemblies on different topics that explore air quality in an introductory context for all age groups and other topics that help to promote active travel and travel safety.

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| **Activity and description** | **Target audience** |
| Introductory assembly: What is air pollution and where does it come from? | KS1, KS2 |
| Be Bright, Be Seen | KS1, KS2 |
| Introductory Assembly: What is air quality? | KS3, KS4, KS5 |
| Anti-idling assembly: Switch off your engine for cleaner air | KS1, KS5 |
| Active travel assembly: Promoting the benefits of active travel | **\*Currently in development\*** |

**Workshops, lessons and lesson plans**   
Led in school by the Education Officer (Air Quality) or self-led using the education pack.

| **No.** | **Activity and description** | **Target audience** | **Suggested delivery time** | **Printable resources available** |
| --- | --- | --- | --- | --- |
| **1** | **Workshop**  ***Introduction to air quality***  Pupils will explore what we mean by air quality, where air pollution comes from and how we can make a difference inside and outside of school. | KS1-3  Suitable for class or smaller group work (i.e. Eco-group) | 2-3 hour-long sessions  Or  1.5-2 hour session | * PowerPoint * Lesson plan * Air pollution causes cut and stick * Air pollution causes labels cut and stick * How we can improve air quality at our school hand out |
| **2** | **Lesson**  ***Fossil fuels: Energy Explorers - What is a fossil fuel?***  Pupils will explore what fossil fuels are, where they come from, how they generate energy and their link to air pollution. | KS1-2 | 1 hour long lesson | * PowerPoint * Lesson plan |
| **3** | **Lesson**  ***Fossil fuels: Energy Explorers - What is renewable energy?***  Pupils will explore what renewable is and the difference with fossil fuels. Pupils will also explore other ways to save energy. | KS2 | 1 hour long lesson | * PowerPoint * Lesson plan * Energy card sorting activity * Energy Explorers game |
| **4** | **Lesson**  ***The effect of air pollution on living things and their environment***  Pupils will explore the connections between air pollution and its effects on living things and how it changes the environment. Pupils can create a campaign to promote the ways in which we can reduce air pollution in and around the school grounds. | KS2 | 1 hour long lesson  Or  1.5 hour long lesson | * Power point * Lesson plan |
| **5** | **Lesson**  ***Air pollution: Here, there and everywhere***  A geography and English linked lesson exploring the causes, effects and solutions to air pollution in and around your school. Pupils will be encouraged after this session to write persuasive letters to their parents or local councillors about air pollution and what can be done about it. | KS2 | 1 hour long lesson  Plus, another 30-60 minutes to complete persuasive letters | * Healthier air worksheet * How we can improve air quality at our school hand out * PowerPoint presentation * Lesson plan |
| **6** | **Lesson**  ***Air pollution: Past and present***  Pupils will explore sources of air pollution from the past to the present. Pupils will learn about the smog of the 1950s-60s and internationally using Beijing as a short case study. | KS2 | 1-1.5 hour long lesson  Or  2 one hour lessons | * PowerPoint * Lesson plan * Air pollution timeline cut and stick * Air pollution timeline labels cut and stick * How we can improve air quality at our school hand out |
| **7** | **Air pollutants and their impact - where does pollution come from?**  Students will learn about where the major air pollutants come from allowing them to research the sources. They will then discuss the best ways to improve air quality in Leicester and prioritise the best methods. | KS3/4 | 1 hour lesson | * PowerPoint presentation * Lesson plan * Research table – comparing vehicles Internet access and list of ULEV vehicles * Or printed vehicle brochures and up to date price list |
| **8** | **Why buy an electric vehicle?**  Introduction to what electric vehicles are (this lesson will focus on cars). Students will understand some basics about what electric cars are and compare statistics of different vehicles when making choices about purchasing | KS3/4 | 1 hour lesson | * PowerPoint presentation, * Lesson plan * Research table – comparing vehicles Internet access and list of ULEV vehicles or * Printed vehicle brochures |
| **9** | **How do we monitor air quality?**  This lesson gives students the opportunity to use real data from air quality monitoring equipment in Leicester. Background information is provided about why and how we monitor air quality, followed by handling data to create graphs (via Excel or hand drawn graphs). Data is then compared between annual and 24 hours mean data. | KS3/4 | 1 hour lesson | * PowerPoint presentation * Lesson plan * Method cards, air quality action plans (AQAP) * Potentially internet access |
| **10** | **Behind the news headlines: can we work out which are reliable?**  In this lesson students will apply questions to reporting research in the media that relate to the research about air quality itself. They will look at research using the acronym SMURF (Sample, Measures, Unbiased Research, Funding) and how it is presented - CASES (Contradictory or supporting evidence, Accuracy, Sources, Exaggeration, Selective). | KS3/4 | 1 hour lesson | * PowerPoint Presentation * Lesson plan * News stories (1-5) - enough for 1 between 2, * Behind the headlines questions (SMURF/CASES) |
| **11** | **How do we improve air quality?**  This lesson will focus on different methods of improving air quality in a city, in this case Leicester. Using real examples in the Air Quality Action Plan (AQAP) students will look at the benefits and potential problems of each method. They may need internet access to find out more about some of the methods | KS3/4 | 1 hour lesson | * PowerPoint presentation * Lesson plan * Method cards * Air quality action plans (AQAP) * *Potentially* internet access |

## **Monitoring air quality and identifying sources of air pollution**

| **No.** | **Activity and description** | **Target audience** | **Suggested delivery time** | **Printable resources available** |
| --- | --- | --- | --- | --- |
| **1** | **School travel survey**  A classroom hands up survey to uncover how pupils mostly travel to school during a typical week. Usually completed at the start of an air quality education project to capture baseline data, but can be used to support other activities, for example:  Data can be used for maths projects or to support a student led active travel behaviour change campaign. | Whole school | 15-20 minute per class  (depending on the size of class) | * School travel survey form * School travel survey instructions |
| **2** | **School traffic survey** A practical activity to explore traffic outside of school. Pupils will work in small groups to uncover the types of vehicles and numbers of passengers that use the roads outside of school. Data can be used for maths projects or to support a student led active travel behaviour change campaign.  Activity best suited to small groups, unless lots of staff are available to support a ratio of 1:6. | KS1-2  After school club  Eco-group | 1-hour session, plus extra to analyse results and present data | * School traffic survey form * School travel survey instructions |
| **3** | **Air pollution catcher session**  This is a practical session in which pupils will hypothesise, plan and implement an investigation that explores where the most air pollution can be found. Children will make their own air pollution catcher.  This could also be suitable as a homework activity.  Pollution catchers, once completed, should be hung in their desired locations for 2-3 weeks before being analysed. | KS1-2  After school club  Eco-group | 1-hour session  Plus, extra time to hang pollution catchers and analyse results. | * Pollution catcher template * Power point |
| **4** | **Lichen study preparation session**  This session will prepare pupils to lead a local lichen study. Pupils will learn the skills they need to primarily identify a selection of nine lichen, which form the Opal Air Survey lichen study. | KS2-4  After school club  Eco-group  School council | 1.5 - 2 hours one off session  Or 2 x 1 hour-long sessions | * Lichen study prep session lesson plan * Site characteristics worksheet * Site characteristics game * Tree characteristics worksheet * Lichen identification game * Lichen identification tally sheet |
| **5** | **Lichen study outdoor session** Good air quality is essential for our health and for the wellbeing of our environment. The OPAL Air Survey offers pupils and teachers to find out about air quality near your school and help scientists answer important questions about the impacts of air quality across the UK, through uploading discoveries to the OPAL Air Survey website.  **Session can be used as a standalone/one-off scientific investigation or as part of an Air Quality Education project. If led by the Air Quality Education Officer, it is advised that this is Part 2 of the investigation, beginning with the lichen study preparation session above.** | KS2-4  Ideal for small groups  School council  After school club  Eco-group | 2-3 hours  Session includes: recap on lichen study tasks, getting to/from study, lichen study activity. | * Links to Opal Air Survey lichen study: [Opal Explore Nature](https://www.opalexplorenature.org/airsurvey) |

## **Practical intervention activities**

| **Activity and description** | **Key stage information** | **Suggested delivery time** | **Printable online resources available** |
| --- | --- | --- | --- |
| **Switch off your engine (anti-idling campaign)**   * Awareness raising assembly * Resources for schools i.e. book bag flyers, A2 poster boards for school gates, fences etc. * Copy and images for school newsletters, website and social media * (Optional) Practical monitoring activity * (Optional) Attendance at parent’s evenings as a gentle reminder to parents.   See the Leicester Mercury’s coverage of the 2018 relaunch: [Leicester Mercury](https://www.leicestermercury.co.uk/news/leicester-news/leicester-kids-take-drivers-who-2348790) | Whole school    Monitoring activity suitable for a small group i.e. school council, eco-group, after school club. | **Half day**  Suggested plan:  Delivery of boards / leaflets (may occur prior to campaign start date)  Awareness raising assembly in AM  PM Optional monitoring activity | For further information please visit: [Air Quality Education](https://schools.leicester.gov.uk/services/environment-health-and-well-being/air-quality-education/switch-off-your-engine-campaign/) |
| **Safer cycle / walking routes mapping session**  **\*Currently in development\*** | KS2-4  School council  After school club  Eco-group | 2-3 hour-long sessions |  |
| **Park and stride mapping session**  **\*Currently in development\*** | KS2-4  School council  After school club  Eco-group | 2-3 hour-long sessions |  |

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