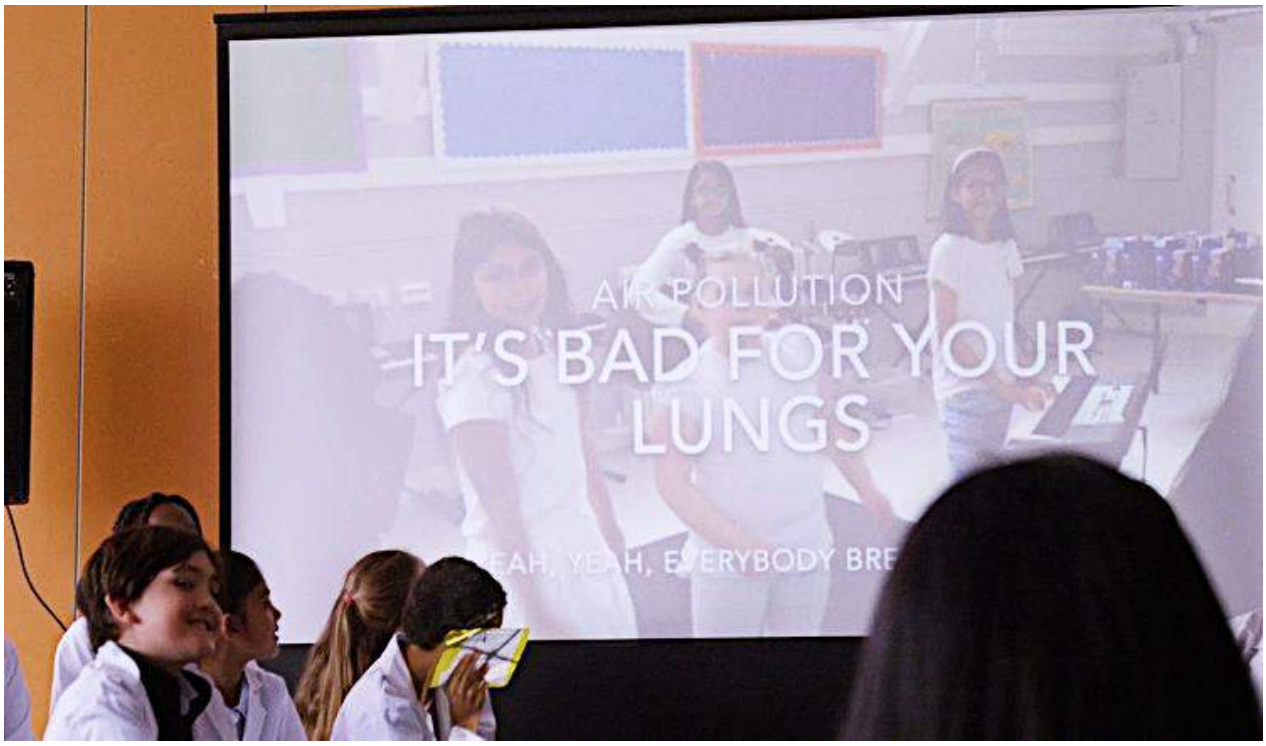
LOOP LABS
Urban Citizen Science Programme
Bonner Primary School – June 2018
Final Summary Report

Re-Issued on 17th December 2018



Project Overview

In April 2018, Loop Labs commenced the delivery of a 6-week Citizen Science Programme at Bonner Primary School Mile End in Tower Hamlets. We worked together with a Year 5 class of schoolchildren to educate, inform and catalyse conversations about air quality. The aim of the programme was to embed long term and durable behaviour change in participants, such as increased walking and active travel, understanding and using clean air routes and encouraging less car use, particularly for short journeys.

In addition to the in-school academic programme, we also focused on involving families, the local community and local businesses to engage with the programme, which culminated in Town Hall style presentation event at The Centre, Mile End in June 2018. Included in the evening event were Year 4 students from Bonner Primary Bethnal Green, who participated in WearAQ, a Loop Labs partner project, run in parallel across the borough.

At the Town Hall meeting, students from both Bonner Primary schools enthusiastically presented their learnings, in a variety of media, to a captive audience of 200 people, representing a wide range of the Mile End and Tower Hamlets community.

Event speakers included Shirley Rodrigues, Deputy Mayor for Environment and Energy at the GLA, Nicky Gavron, London Assembly Menber, GLA, Cllr Rachel Blake, Deputy Mayor and Cabinet Member for Regeneration and Air Quality, Tower Hamlets.

Attendees included non-profits like Unicef, Client Earth, Friends of the Earth, HealthWatch, Nomadic Gardens, THCVS, local businesses; Felicity J Lord, Ludlow Thompson, community organizations: Public Works, Mudchute City Farm, the Tower Hamlets Young Mayor and Deputy, religious groups, including church groups and the local Bahai's.

The evening was capped by an informal Q+A, as Shirley Rodrigues, Nicky Gavron, Rachel Blake and Nicholas Marks took turns answering questions from the audience.

Monitoring Progress

At the end of the school programme, parents were asked to answer questions on air quality, transport choices and their physical activity. Through these evaluations, participants expressed enthusiasm for the project, a positive shift in walking behaviours, were keen to make changes to benefit their children's health and improve their local environments and said they'd aim to take the car out a bit less.

Loop Labs follows up with participants at regular intervals, to monitor their progress and identify any ongoing shifts in behaviour. We will be relaying these findings to the council.

By raising awareness levels of air quality, transport choices, physical activity and health amongst the Bonner Primaries and Mile End community, we have encouraged the local community to take simple actions that can cumulatively have a significant impact. The coming together at the Town Hall gives participants a sense of collective agency and creates direct dialogue with the elected leaders and council representatives. This direct communication is an effective way to reach hearts and minds in the Tower Hamlets community.

What can be improved

At the launch event, parents were given pedometers to measure their walking. This was not a useful way to measure their walking, as many parents forgot the devices at home etc..., but they did function as a reminder that they should walk more in general. In future programmes, any walking measurement will be done with the participants own mobile phones, as walking apps are now widely available.

The In-School Sessions

Lesson 1

Led a discussion about the role of scientists and identified famous scientists that the children had heard of and what they had achieved e.g. Einstein, Bell. We explored the concept of 'citizen scientists' and what all individuals can contribute to society. We looked at a scientist's 'notebook' which illustrated an unscientific method of conducting an experiment and the children were asked to highlight all the errors they could find. This was used to discuss the need for a hypothesis when conducting an investigation and the correct method of taking measurements etc.

Introduced the topic of air pollution using a letter from a scientist addressing the issue of 'invisible dirt'. We discussed the different types of pollution (air pollution, noise pollution etc) and identified key pollutants in the air.

Lesson 2

We looked at the earth's atmosphere, the role it plays to protect life on the planet and the gases that constitute air. There was a simple introduction of the periodic table and some of the key elements e.g. Oxygen, Carbon, Nitrogen and how they bond to form CO2 and H20.

We learnt about fossil fuels (what they are) and how burning them contributes to pollutants in the air and the harmful effects of carbon monoxide,and nitrogen and sulphur dioxide.

We discussed whether air pollution is a new problem or an age old issue and watched a short video on the history of air pollution, the industrial revolution and it's effects and the introduction of the Clean Air Act.

The children were asked to make notes on key points from the video and write down words they did not understand and these were clarified.

Lesson 3

This was an active lesson as citizen scientists where we arranged a walk around the local area to see if we could measure air pollution ourselves i..e. particulate matter. We conducted the 'sticky tape test' - the children were asked to place cellotape on a wall/lamp post and make a comparison of the school site, the side streets, Mile End station and Tower Hamlets cemetery. They noted that the main road was particularly dirty and noticed how dirty the facade of the buildings were in comparison to the quieter roads. The students were also asked to take a deep breath at each of these locations and assess the quality of the air. Almost all of the children noticed a stark difference between the air quality on the main road and the cemetery and commented that they had never paid attention to this before. The children made a link between roads with heavy traffic and bad air quality and suggested that it would be wise to avoid walking on the main roads and instead utilise the side streets since there were fewer cars. During our walk we also had an informal talk about the importance of walking and the positive benefits it can have on our health.

Lesson 4

This lesson followed on from the walk from the previous week. We discussed how air quality is measured i.e.the Air Quality index and we watched a short video clip on how scientists are using technical equipment to measure the air around us. We talked about our routes to school and other local walks. The pupils were asked if they generally used the main roads or side streets. A large number of the students mentioned that they had spoken to their parents about the walk we had taken the previous week and had convinced them to avoid using the main road.

We looked at the use of a clean air route mapper (https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/clean-air-route-finder) and used the address of 3 students to demonstrate how the website worked and the children were encouraged to inform their parents that an app could be downloaded onto their phones. All the pupils were eager to use the website to find an alternative route and their teacher assured them that they would be allowed to investigate this in a later lesson.

A small group of 6 students helped to put up 4 diffusion tubes around the school and just outside the school building so that we could actively measure the air quality around them

Lesson 5

The lesson started with a quick consolidation of the learning from the previous few weeks - the students were given a fact sheet about air pollution and asked to match key words with the correct definitions. We then studied the respiratory system (we watched

a short video clip) and examined how lung capacity can be measured and the harmful effects of air pollution on our health i.e asthma.

We looked at ways that air pollution could be reduced at home and at school i.e. driving less, walking more, consuming less energy, planting more trees, and the use of indoor plants to absorb air pollutants. The students were very passionate on this topic and wanted more government action. They advocated getting rid of individual cars and using mainly public transport and also using only electric vehicles. The visualised a future which would utilise renewable energy and the move away from burning fossil fuels.
The second half of the lesson was used to brainstorm ideas for their end of topic presentation to demonstrate what they have learnt and to convince the adults present to tackle the issue of air pollution. The pupils decided on recording a pop song, bringing the topic to life!

Many of the children were actively engaged with the topic. A few students brought in posters that they had made at home and a few others reported news stories that they had followed regarding the high levels of air pollution in other cities i.e. Delhi and Beijing. The students made a link between the burning of fossil fuels, high energy consumption and its impact on air pollution. They realised that little acts like switching off lights, turning off the TV etc..could help reduce pollution in the long term. They became more aware of their walking routes and the benefits of avoiding roads with high levels of traffic. At the end of topic presentation many of the parents reported that their children were constantly discussing the problem of ‘dirty air’ and encouraging their parents to devise alternative walking routes.

Evaluation and Impact

Loop Labs consulted the parents six months after the programme to gauge the impact of the project on the participating pupils and their families. Of the evaluations that were received, 60% of the participants were encouraged to walk more. Many of the families changed their behaviours i.e. “were encouraged to walk more” and “changed their walking habits”.

Amongst the participants, there was an overall increased awareness of their health and wellbeing, walking vs. driving short distances, car idling and general pollution issues.

Parent feedback on the evaluation forms was encouraging. And we quote:

“Happy doing the project and made me walk to the shops more instead of using the car.”

'The cleanliness of air is important to the health of our children in the community. Awareness has improved immensely. Really helpful, useful and informative programme."

“Really enjoyed the project and taking an interest in health issues and air quality.”

“Children were really engaged and got in to it, great way to motivate people.”

80% of the respondents were more aware of air pollution and would take more time to reach their destinations, in order to travel via green spaces and less polluted roads. Many participants had continued to walk more for short distances, rather than driving.

Overall, the pedometers were not being consistently used, with just 30% continuing after the project completion. Some of the respondents, prompted by the evaluators, said they would to start monitor their step count more regularly, using readily available phone apps.

Report compiled by Loop Labs team
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