

Monitoring children's exposure to air pollution: The Breathe London Wearables Study

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Sensors to engage, educate and empower

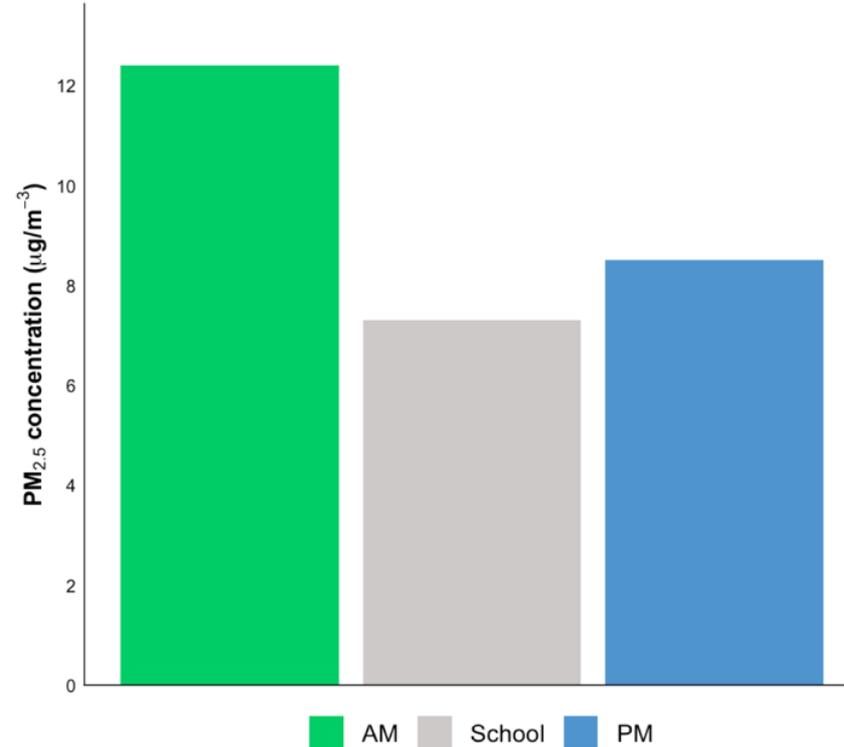
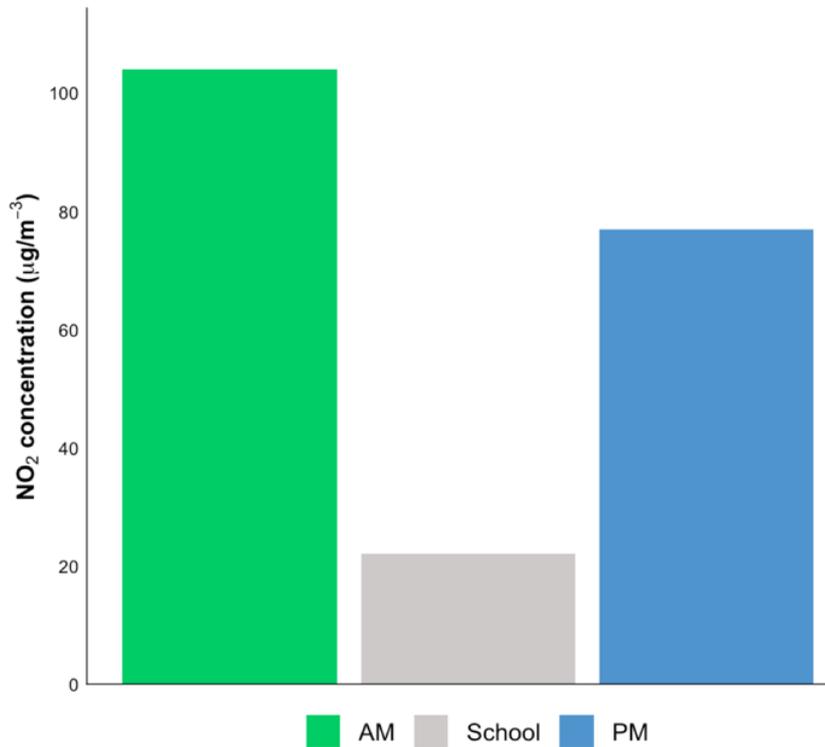


Breathe London Wearables

- 5 weeks
- 5 primary schools
- 258 children
- 30 teachers
- 70 Dyson sensor backpacks
- 2,000 school journeys
- 490 million measurements
- 300 “I’m an air quality scientist” badges
- 342 surveys
- 10 focus groups

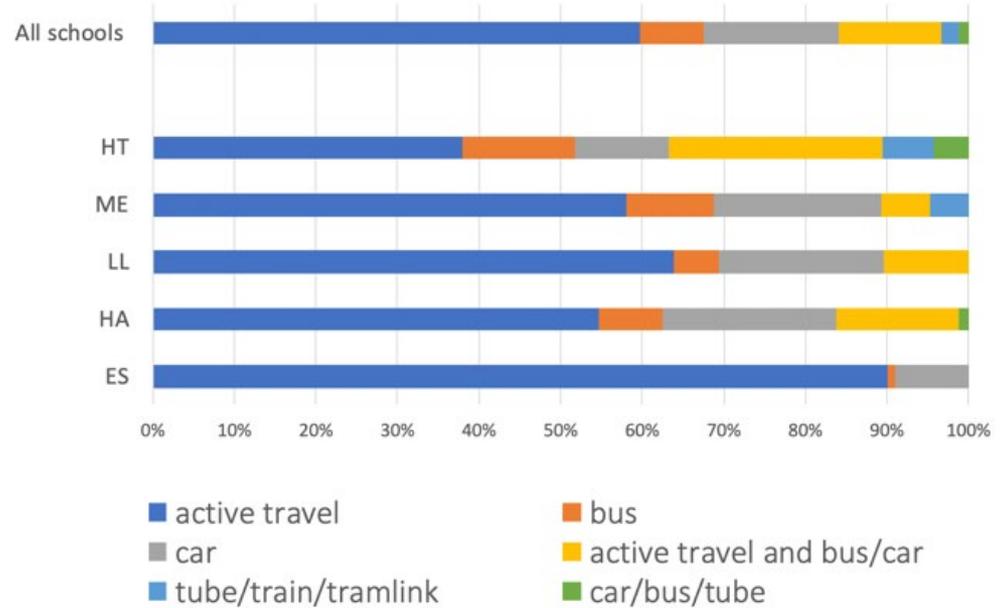
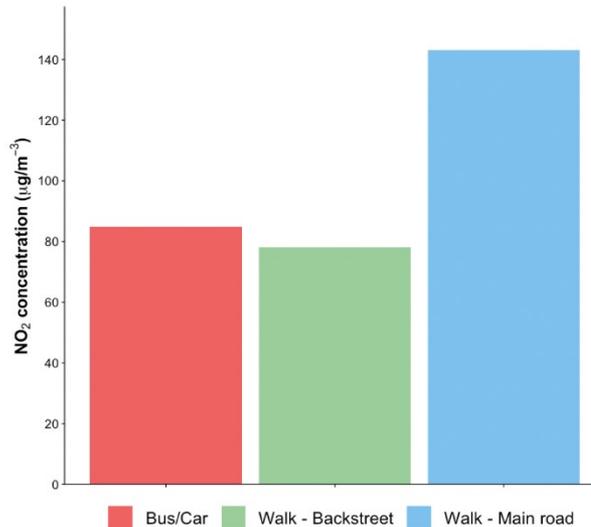
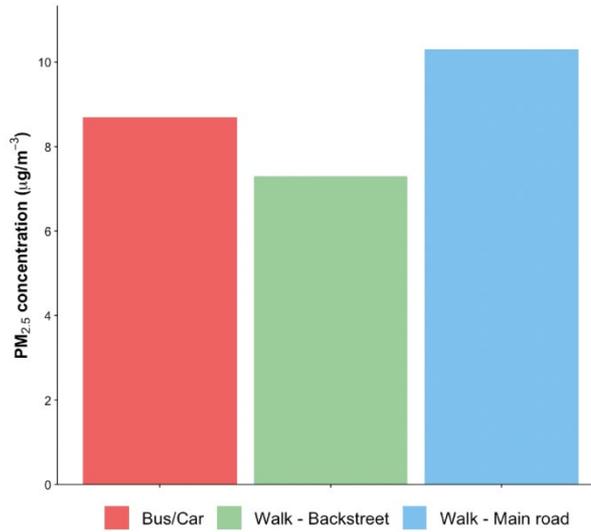


Headline results – exposure to and from school



- NO₂ exposure during the morning commute was five times higher than while at school

Headline results – modes of transport

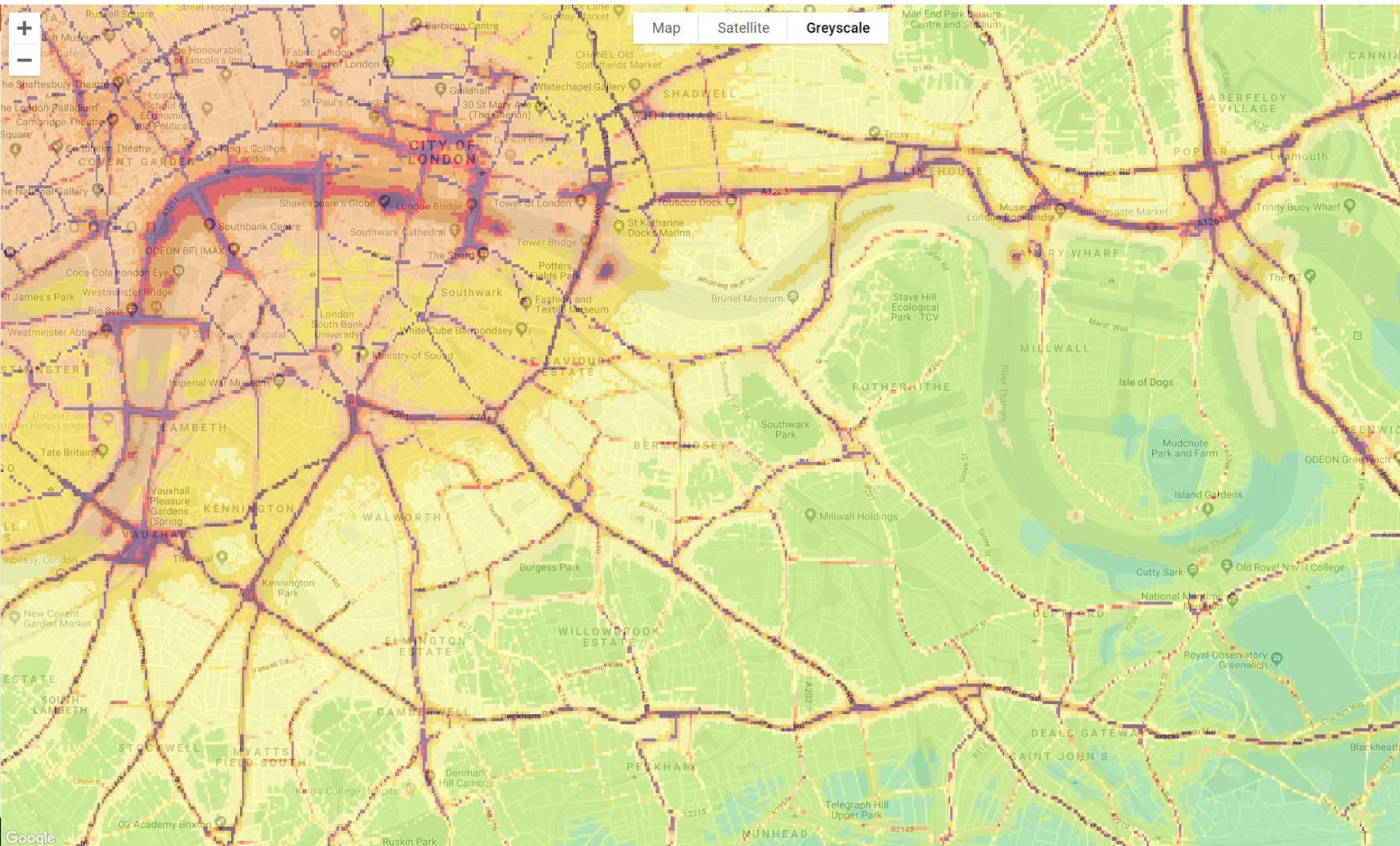


- 60% of journeys were by foot (42-88%)
- 45% of journeys were less than 10 minutes
- Those walking along back streets were exposed to the lowest levels
- Some extremely high concentrations were recorded in cars and buses

Breathe London Wearables – exposure maps

- <https://sarbeswarpraharaj.carto.com/builder/e1a5f1b2-9e44-4f2a-9c40-150f2172f297/embed>
- <https://sarbeswarpraharaj.carto.com/builder/430fc89d-e160-4cf2-b8dd-05e9dd56a627/embed>

But we already know this...



Credit: Greater London Authority and King's College London

The power of engagement

“My role in the project was to be a scientist and discover different types of pollution to help to see how much pollution is there and the difference in the different roads” (Child, Year 3)

“I was a bit scared before the project but now I am happy to know that I can do something about it because I didn’t know anything about it but now I know that I could walk through the parks or back roads and try to stay away from traffic as much as possible” (Child, Year 4)

Did you tell your parents about the project? What did you say?

"Can we walk to school today?" "Let's go through a different route!" (Child Year 5)

“We need to don't make pollution, the earth is going to be a rubbish land” (Year 5)

“I said to my dad – try to use your car less” (Child, Year 4)

The power of engagement

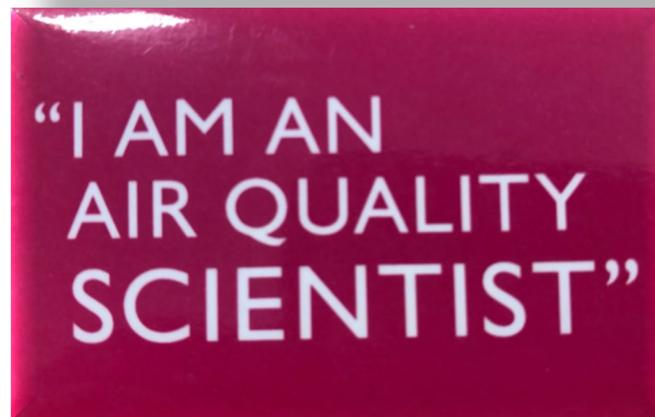
Parents quotes

- *“Thank you for working so hard on this project. It is good to get some empirical data. The kids have got involved, became aware and learnt a lot”.*
- *“I would like to take the opportunity to thank everyone on the pollution team to come up with the idea to go in the school specially my child school...because I knew that there was pollution there, but I didn’t know it was so bad. “*

Teachers quotes

- *“I think this project is very important, It is important to empower the children and give the children knowledge about what is going on about a problem that is very real particularly for them and for their future.”*
- *“The project make the children feel like real scientists, like they were taking part in something real.”*

As a result of taking part in the study, 31% of the children and parents questioned changed the way they commute to and from school in order to reduce their exposure to air pollution



*Many thanks to all our air quality scientists (the children), their parents and teachers
Backpacks were designed and provided by Dyson Ltd following a competitive selection process.
Approved by the King's College Research Ethics Committee, King's College London.*