Air quality case study: December 2015

Starting young: changing behaviours to improve air quality

Air pollution is a significant public health issue in many Scottish cities due to emissions from vehicles. Working with young people is proving to be a successful way to help change behaviours that contribute to air pollution as shown by a collaborative education initiative called Learn About Air.

Levels of pollutants such as nitrogen dioxide and particulate matter (tiny coarse particles) released from vehicles exceed European air quality standards in several of Scotland's major cities and this is significantly impacting on the health of local people especially children. Air pollution causes respiratory conditions and puts strain on the lungs and heart. For people who suffer from pre-existing health issues such as high blood pressure or a weak heart, this extra pressure on the body can aggravate their conditions. For some it can lead to premature death. Overall, air pollution is estimated to reduce the average life expectancy of every person in the UK by six months, and costs the UK economy around £16 billion per year. In comparison, the total cost to society of smoking is estimated to be £13.74 billion[1].

"Educating children now on the importance of clean air and what can be done to stop air pollution is considered one of the best ways to change behaviours … children take this message home to their wider household and may also use it to make sustainable travel choices when they become adults." says Colin Gillespie, Principal Scientist for SEPA.

To help achieve this, SEPA in partnership with North Lanarkshire Council and Education Scotland has developed an air quality teaching package, based around the Curriculum for Excellence, in the form of a dedicated website Learn About Air. Working with Edinburgh University, low cost, robust, air quality sensors have been developed to support the teaching package and piloted in a number of schools. The sensors gather data on air quality around the schools and automatically send it to Scotland's Environment website, where the results are displayed for the pupils to analyse, using a Spotfire data tool. Visual charts help the pupils note the patterns of air quality at certain points during the day and this is combined with other activities, such as class travel plans and local traffic surveys at their school.

Councillor Helen McKenna, Convener of the Environmental Services Committee at North Lanarkshire Council said "This innovative education resource … brings the topic to life through hands-on experiments and activities, teaching pupils about the impact air quality has on their lives and communities, and how their actions can affect the air they breathe."[2]

A Primary 6 pupil at St Ninians Primary School in South Lanarkshire said "The project made me think differently about air quality because I didn't know air pollution could be so dangerous and I never realised how threatening it could be to others. It could give you lung disease, cancer, asthma and even cause death. Which made me actually wonder if my asthma was caused by air pollution"?

The Head Teacher at St Ninian's Primary Margaret Anne Ferguson said; "Our staff and pupils really enjoyed the opportunity to use the teaching pack. There are serious messages about air quality and practical examples of how we can all work to make improvements but it is also really well packed in engaging learning activities.

[1] http://www.sepa.org.uk/making-the-case/air/health-impacts/
[2] http://www.sepaview.com/2015/09/starting-young-changing-attitudes-to-air-quality/

"After working through the teaching pack one of our pupils wrote a letter to parents urging them not to park in the school car park, detailing the impact vehicle emissions have on air quality and offering alternative transport options; it really demonstrated the impact of this resource being used in class."

The pupil said "I am writing this letter to persuade you to try not to park in the school car park as it is raising air pollution levels. … We have come up with a solution to help prevent pollution but it will only work if we all try hard enough. To prevent this you could cycle, walk or drop off a little way away from the school and walk the rest of the way … If we can make our solution work, it will also help prevent health problems like asthma." [2]

Learn About Air was launched in September 2015 at the Scottish Learning Festival and reached the finals of the National Air Quality Awards. It is a great example of how successful partnerships and providing easy access to data can engage and empower young people and communities to change behaviour and help create a healthier environment.

Air Quality Education Success	
Economic	• Reduction in air pollution due to changes in school travel behaviours reduces health issues and costs to NHS. • Ready-made educational packages and low cost robust sensors available for use in schools saving time, resources and costs for teachers and schools
Environmental	• Reduction in air pollution due to changes in school travel behaviours
Social	• Children more empowered to take action to improve air quality • Households change travel pattern behaviours (e.g. walk or cycle to school) reducing air pollution and improving peoples health and well-being