

# Air Quality Teaching Package

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**SEPA**

# Project Team



The Learning Centre

Environmental Health

Primary School  
Teacher

Secondary School  
Teachers



Scotland's environment 

Gateway to everything you want to know about Scotland's environment

# Why are SEPA developing a Teaching Package?



May 2014

## Urban air quality citizen science

### Project overview report

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This report is part of a programme of work commissioned by the Scottish Environment Protection Agency (SEPA) on behalf of the Scotland's Environment Web Project, supported by the European LIFE+ programme

Urban Air Quality Citizen Science Programme started 2013

Citizen Science Advisory Group

Focus on Schools and Transport

## Pilot Projects

- Preston Lodge High School
- Glasgow Bike Station

# North Lanarkshire Council Teaching Pack



## NLC Teaching Package



## SEPA Citizen Science



## National Teaching Package



# Structure of National Package

1. Updated Primary School Package

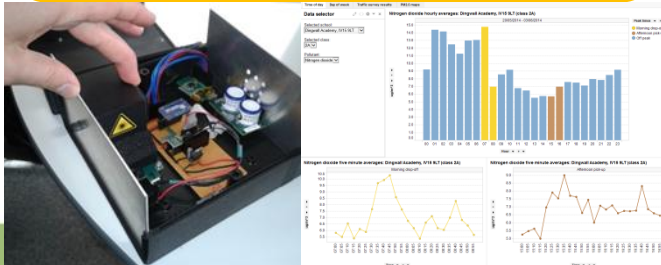
2. Secondary School Package

Geography Lessons

Science Lessons

**Air Quality Citizen Science**

- Engage the pupils
- Collect air quality data
- Enable behavioural change



**Classroom based  
experiments**  
- Designed by SSERC



# Teaching Material

- **Led by Teachers and Education Scotland**
- **Meets 'Experiences and Outcomes' in Curriculum for Excellence**
- **Encourages progression of skills from upper primary to secondary schools**
- **Created in areas of deprivation where the language of science is not typically spoken in the home**
- **Challenges learners to relate findings to their everyday experiences and the choices they make**
- **Engaging and enjoyable to use with extension materials to challenge learners**

# Science Lessons

The interface features a central teal box with the text "PLAY INTRODUCTION". Above this box is a red banner with the text "Learning about AIR QUALITY". The background is a light blue sky with white clouds and a city skyline at the bottom. On the left, a female scientist in a white lab coat stands next to a large white cloud. On the right, a male scientist in a white lab coat and safety goggles holds a test tube. In the background, two other scientists are visible, one holding a pencil and the other holding a test tube. A progress bar is located below the central box, with the word "PLAY" on the left and a play button icon on the right. Below the progress bar are three icons in pink circles: a school building labeled "Primary", a test tube labeled "Secondary: Science", and a globe labeled "Secondary: Geography".

Learning about  
**AIR QUALITY**

**PLAY  
INTRODUCTION**

PLAY

Primary

Secondary: Science

Secondary: Geography



# Geography Lessons

The screenshot shows a digital interface for an interactive lesson. At the top, the text "Learning about" is in blue, and "AIR QUALITY" is in large white letters on a red background. Below this, a large teal rectangle contains the text "PLAY INTRODUCTION" in white. To the left of the teal box is a female scientist character, and to the right is a male scientist character holding a test tube. In the background, there are illustrations of a factory with smokestacks and other scientists. Below the teal box is a video player interface with a "PLAY" button, a progress bar, and a volume icon. At the bottom, there are three icons in pink circles: a school building labeled "Primary", a test tube labeled "Secondary: Science", and a globe labeled "Secondary: Geography". A blue city skyline is visible at the very bottom of the interface.

# Specknet Sensors



PM10, NOx

# Results Visualisation



Time of day Day of week Traffic survey results

## Data selector

Selected school:  
Dingwall Academy, IV15 9LT

Selected class:  
2A

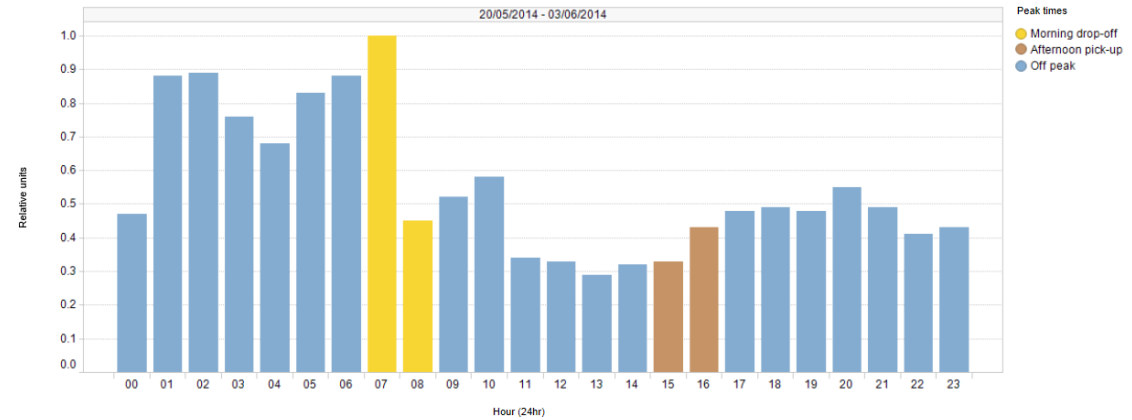
Pollutant:  
Nitrogen dioxide

## Participating schools

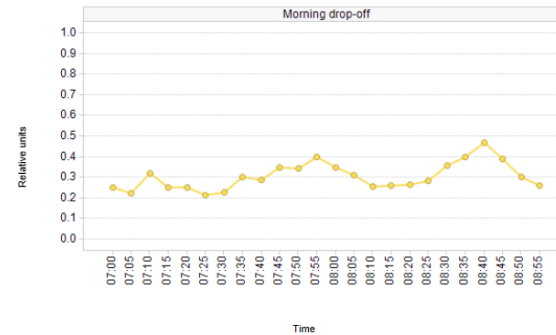
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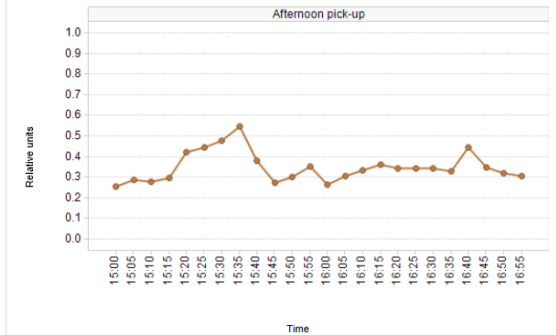
Nitrogen dioxide hourly averages (Mon-Fri)



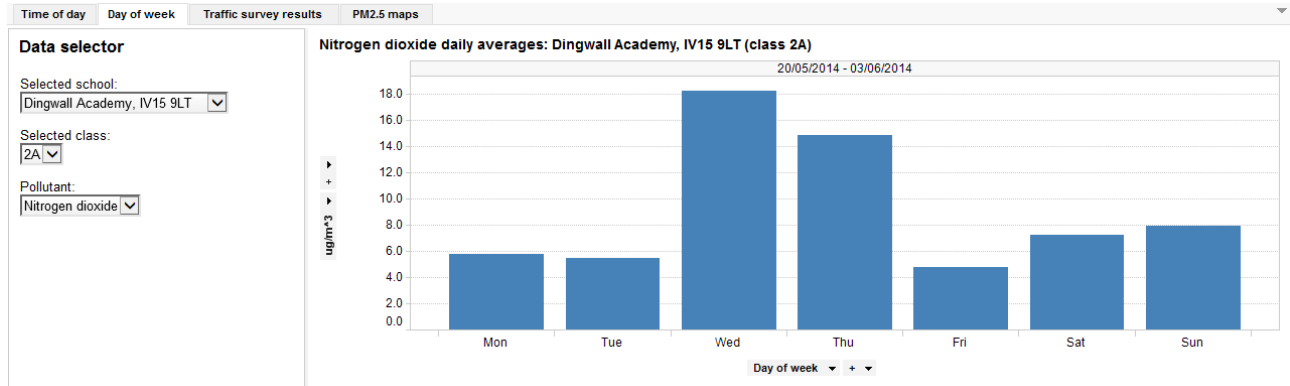
Nitrogen dioxide five minute averages (Mon-Fri)



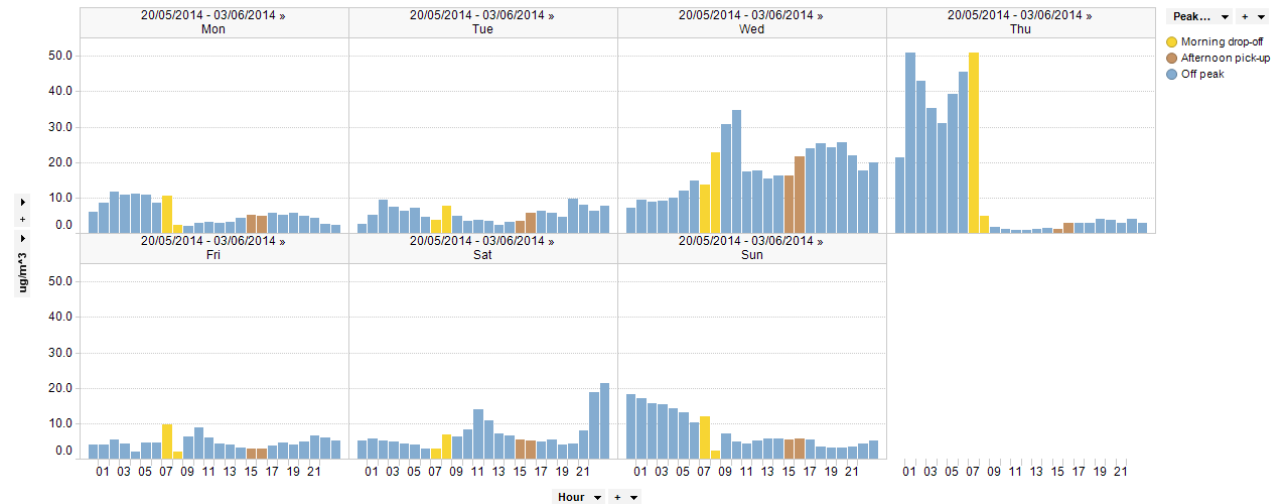
Nitrogen dioxide five minute averages (Mon-Fri)



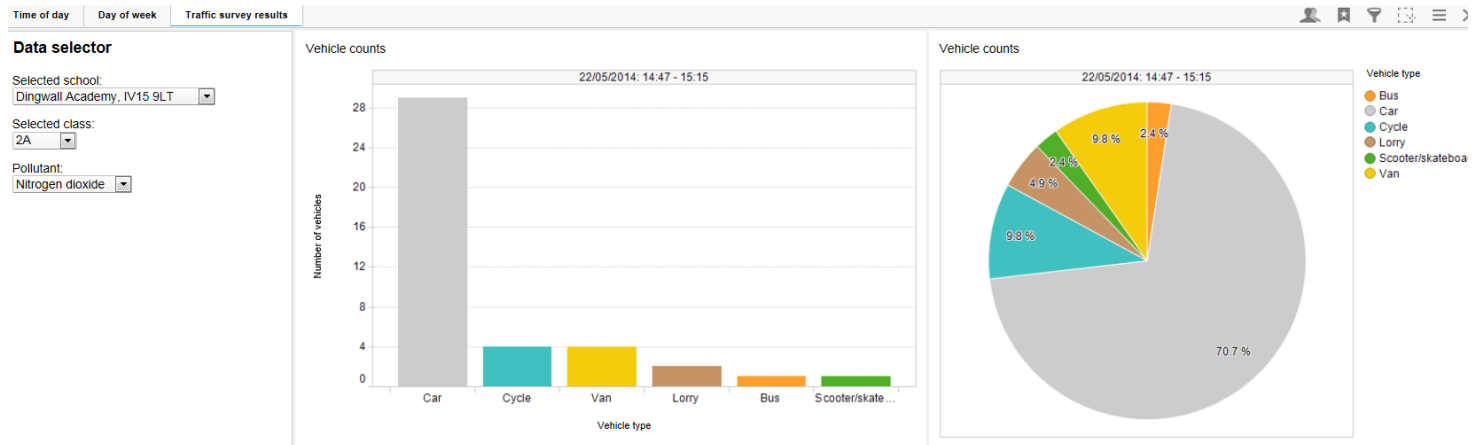
# Results Visualisation



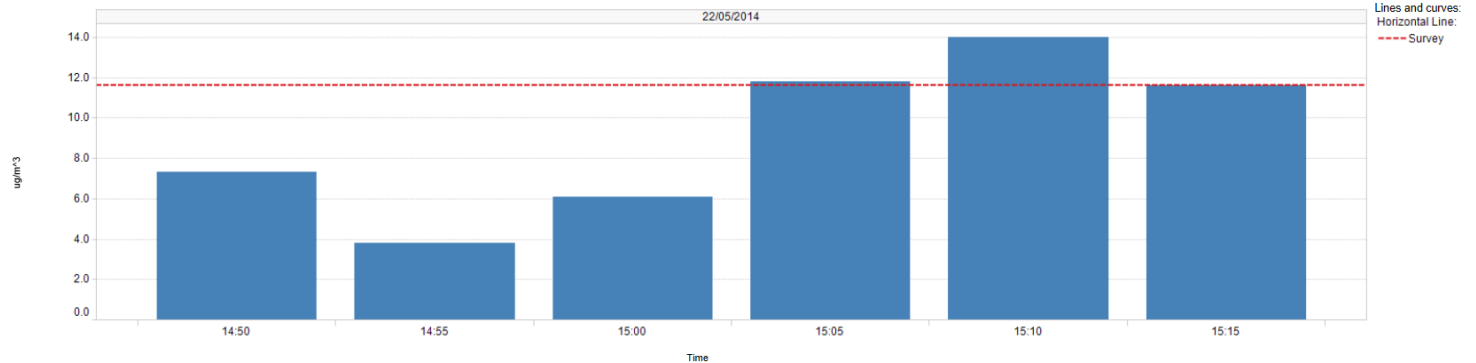
**Nitrogen dioxide averages by hour and day: Dingwall Academy, IV15 9LT (class 2A)**



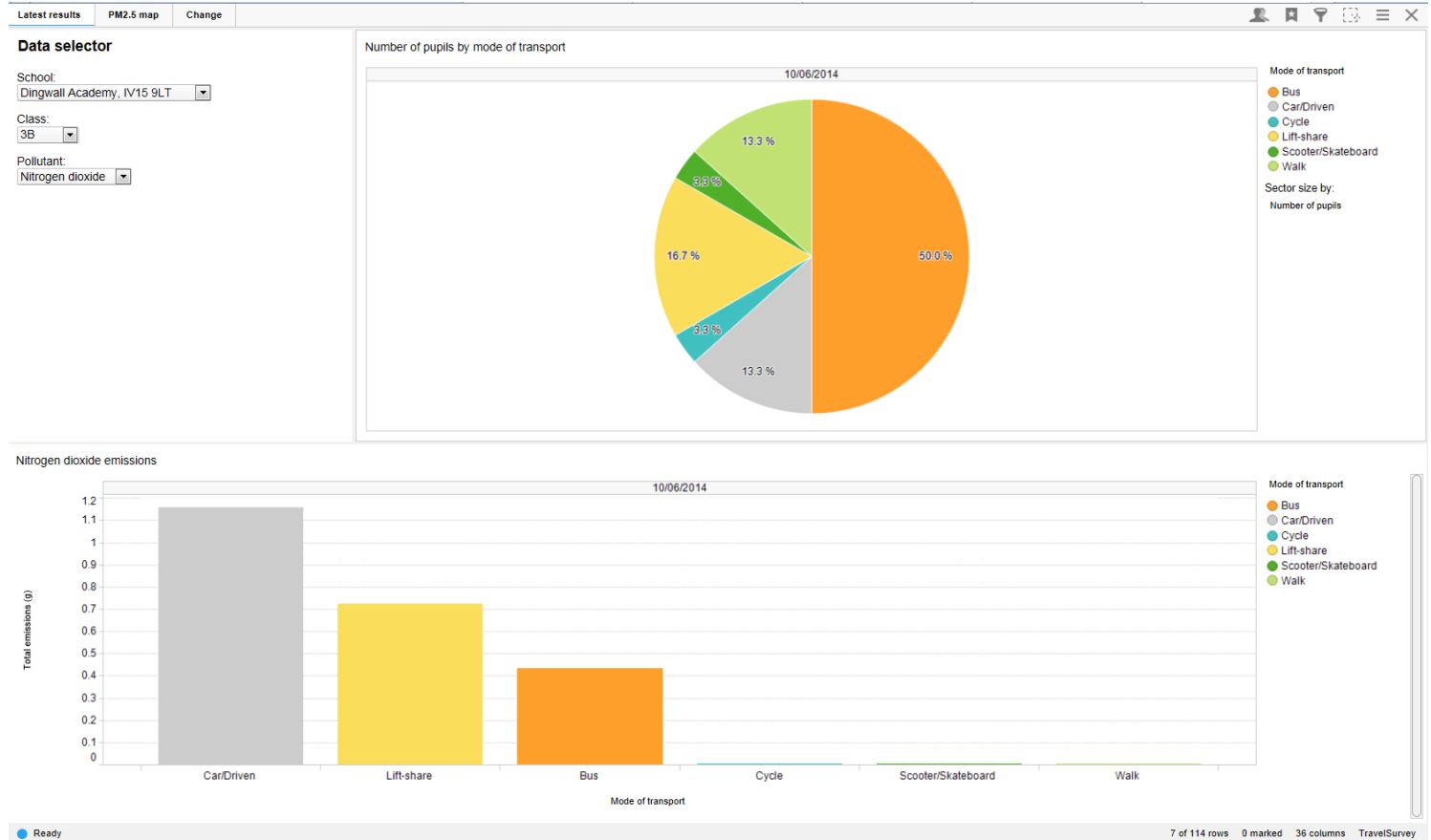
# Results Visualisation



Nitrogen dioxide five minute averages and traffic survey calculated emissions



# Class Travel Survey



# Class Travel Survey



[Latest results](#)
[PM2.5 map](#)
[Change](#)

## Data selector

Comparison type:  
 School

School:  
 None

Class:  
 None

Urban/rural:  
 Type to search in list
 

- (All) 2 values
- Rural
- Urban

## School comparison

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# Class Travel Survey



Latest results PM2.5 map Change

## Data selector

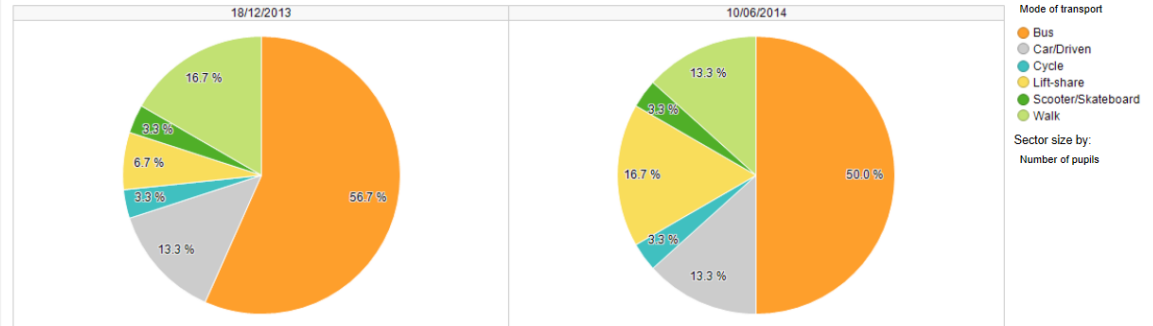
School:  
Dingwall Academy, IV15 9LT

Class:  
3B

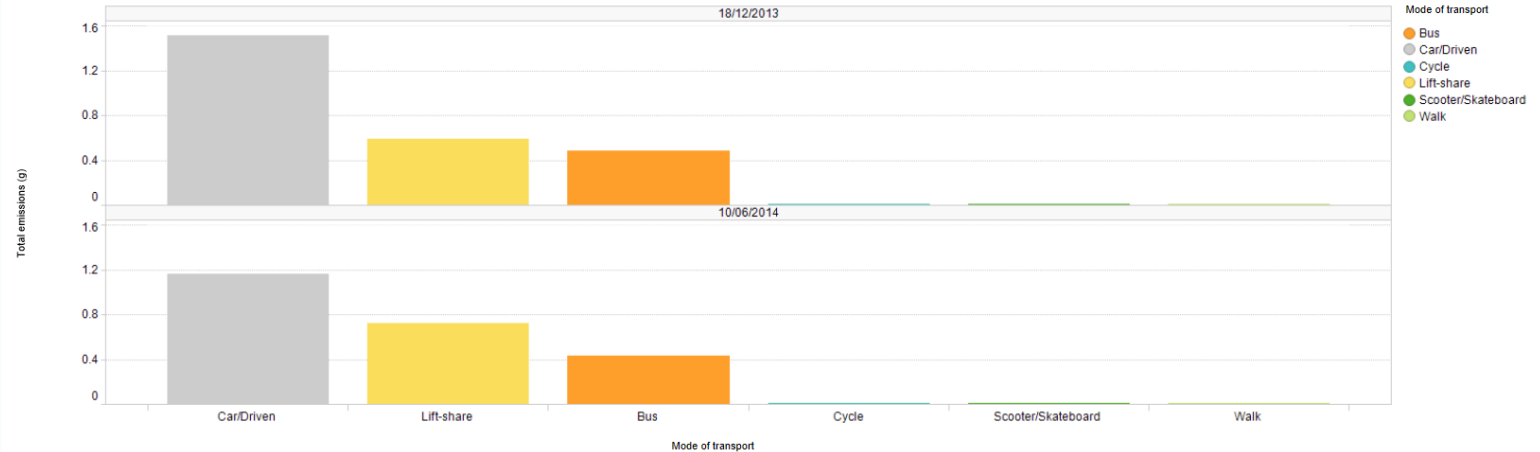
Pollutant:  
Nitrogen dioxide

Academic year:  
2013/14

## Number of pupils by mode of transport

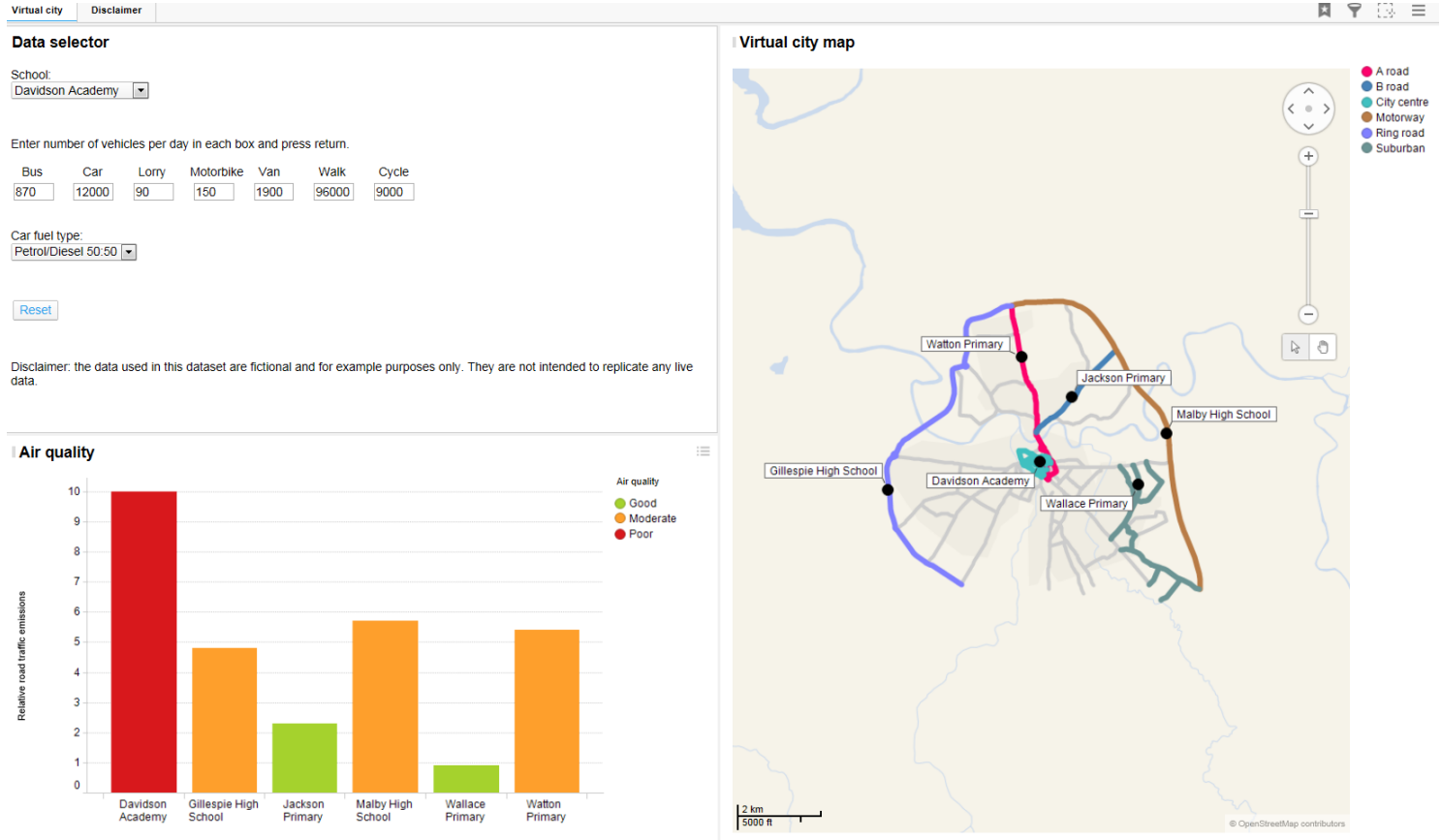


## Nitrogen dioxide emissions





# Virtual City Game



# Timescales

**April 2015**

**Draft package ready**

**May – September 2015**

**Trial at schools**

**Co-location of sensors**

**September 2015**

**Launch at the  
Scottish Learning Festival 2015  
and roll out nationally**

# Thanks for listening

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