Create Your **Clean Air School Map**

Activity: Draw a map of your school

Purpose: Guide decision making on where to locate NO_2 Monitoring Tubes

Educational Outcomes: Encourages observational skills, spatial awareness, map reading, technical drawing to scale

Curriculum links: Links to Junior Cycle Science, Geography, and fundamental Earth & Environmental Science skill

Tools required:

- If drawing by-hand - Pencil, paper, and ruler and area map
- If using a computer - Microsoft Suite (or other software to create a simple map)

Additional tools: Access to a computer to use Google Maps (satellite view) or Google Earth. Local maps or aerial photographs

Introduction

You will be receiving your tubes for measuring nitrogen dioxide, a traffic-related pollutant, shortly. Your job is to decide **where** on the school grounds/surroundings to mount those tubes. This is a really important step in designing your study. How do you decide where to put your tubes?

Stage 1. Planning

Take a few minutes to discuss the purpose of the Clean Air School Map and ask students what should be included in the map.

- What is the purpose of the map?
- What kind of information should I include?
- What area should I cover?

Feel free to use the GLOBE 'Making a Map' resource.

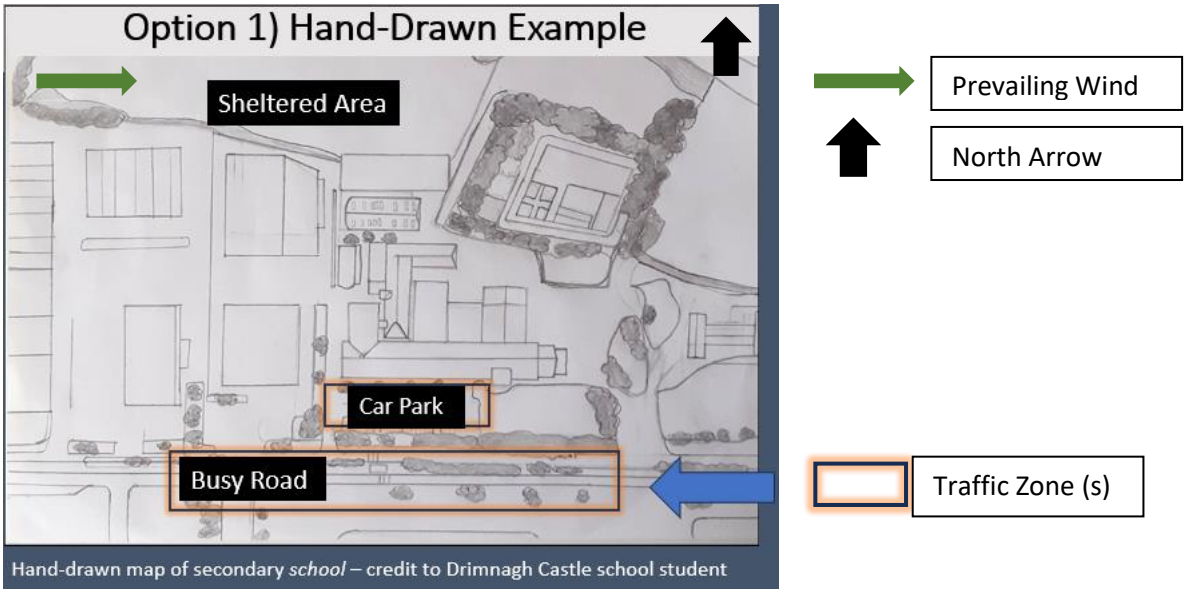
Students are asked to label '**Traffic Zones'**

Remember: Traffic Zones – are areas around the school where there is heavy traffic and where students congregate or travel.

Stage 2. Option 1 - Hand-draw your map!

A. **<u>Keep your map simple!</u>**
B. Draw from 'birds eye view' perspective (looking down)
C. Label North using an arrow.
D. Draw the outline of the major buildings, outdoor playing areas (yard, field/pitches), and nearby roads
E. Clearly label any **Clean Air Zones**, for example, car parks, drop off/pick up areas, traffic 'pinch points' where cars tend to idle (entrance gates, traffic lights)
F. Use a paper OSI topographic map or Google Maps to measure the distance between nearby roads and your school. Alternatively, you can 'pace' the distance on foot (do not forget to measure your stride length first!)
G. Mark where you choose to monitor air quality (nitrogen dioxide) on your map.
H. Complete your legend.

Example:



Hand-drawn map of secondary *school* – credit to Drimnagh Castle school student

Remember: Traffic Zones – are areas around the school where there is heavy traffic and where students congregate or travel.

Stage 2. Option 2 Create a digital map!

A. You could use Microsoft Suite (or any software where you can draw/insert simple shapes) **OR use Google Maps (satellite view)** as a 'Base Map' and annotate in PowerPoint.
B. Keep your map simple!
C. Draw from 'birds eye view' perspective.
D. Label North using an arrow.
E. Draw the outline of the major buildings, outdoor playing areas (yard, field/pitches), and nearby roads
F. Clearly label any **Clean Air Zones**, for example, car parks, drop off/pick up areas, traffic 'pinch points' where cars tend to idle (entrance gates, traffic lights)
G. Use a paper OSI topographic map or Google Maps to measure the distance between nearby roads and your school. Alternatively, you can 'pace' the distance on foot (do not forget to measure your stride length first!)
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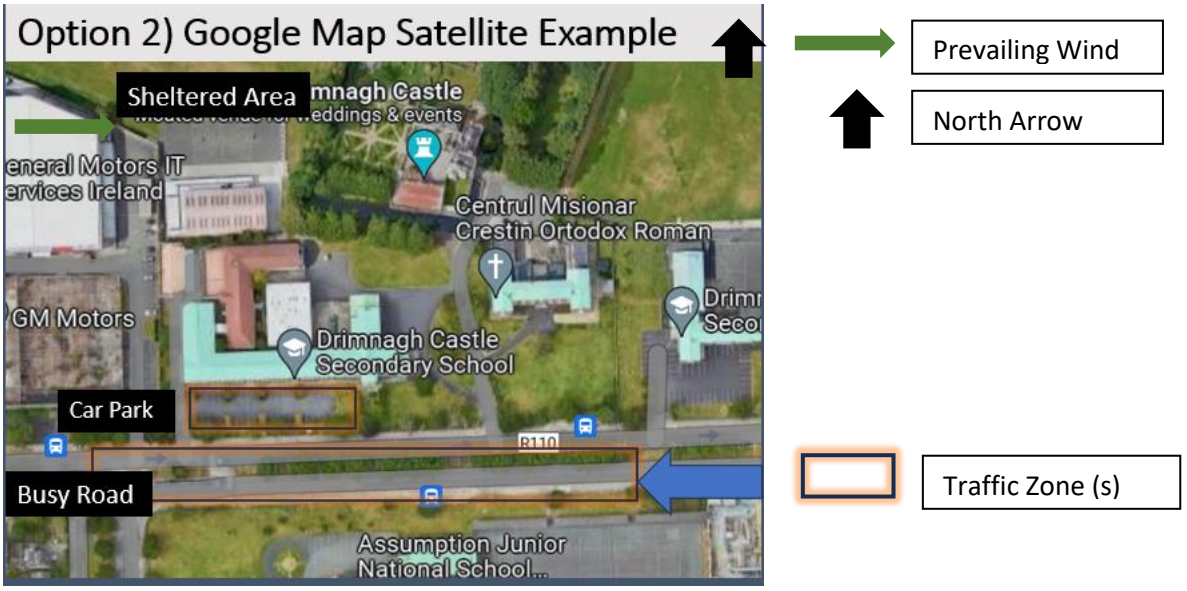

Traffic Zones – are areas around the school where there is heavy traffic and where students congregate or travel.

What else will affect my results?

- The prevailing **wind direction** will influence the movement of nitrogen dioxide! NO_2 levels are highly variable and can decrease just 10s of meters away from their source.
- Is the air flow pattern moving nitrogen dioxide from a nearby road towards your school? You can look up historical daily wind direction to identify your local prevailing wind direction when choosing locations.
- Record the weather and traffic count twice per week during the 4-week measurement period.

Student Presentations

Ask students to present their final map to the class. The objective is to reach a class decision on where to locate the monitoring tubes. Students could include supporting information, such as prevailing wind direction, likely traffic pinch-points, school commute routes, to decide where the tubes should be mounted.