

Important dates presented on our Green-School's notice board

**GREEN SCHOOLS
NOTICE BOARD
SEPTEMBER/OCTOBER 2023**

Key Dates

- September 26th
 - Put air quality tubes up
- October 24th
 - take air quality tubes down, post back to be analysed

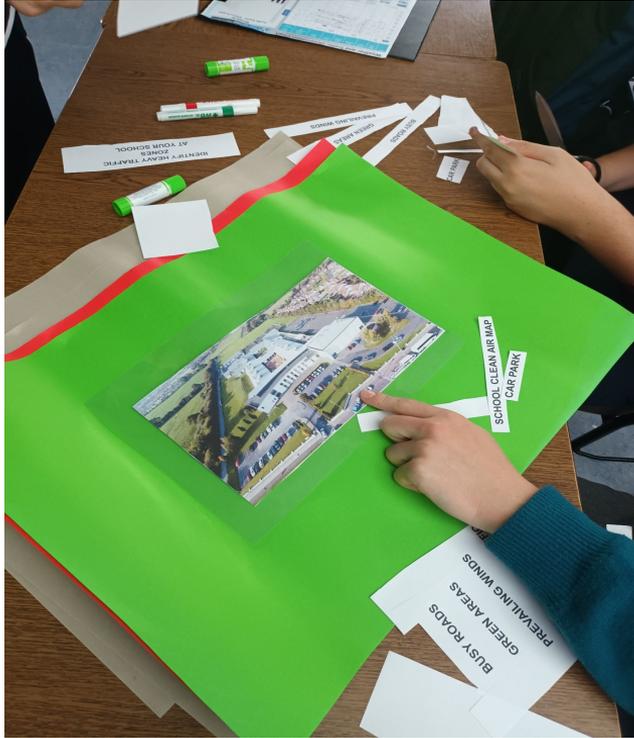
Putting up our test tubes -Sept 26th



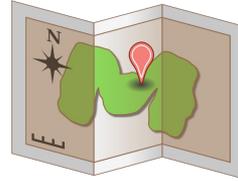
Taking down our test tubes October 24th posting to laboratory



Making our clean air map



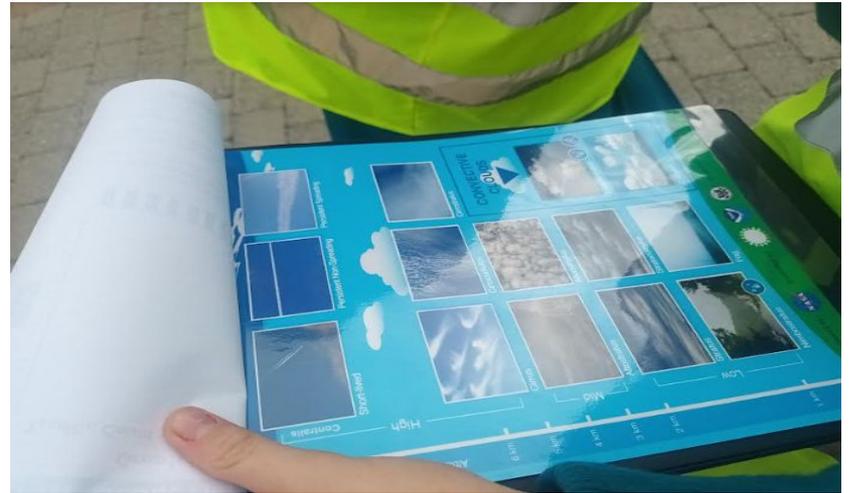
Making our Clean Air Map



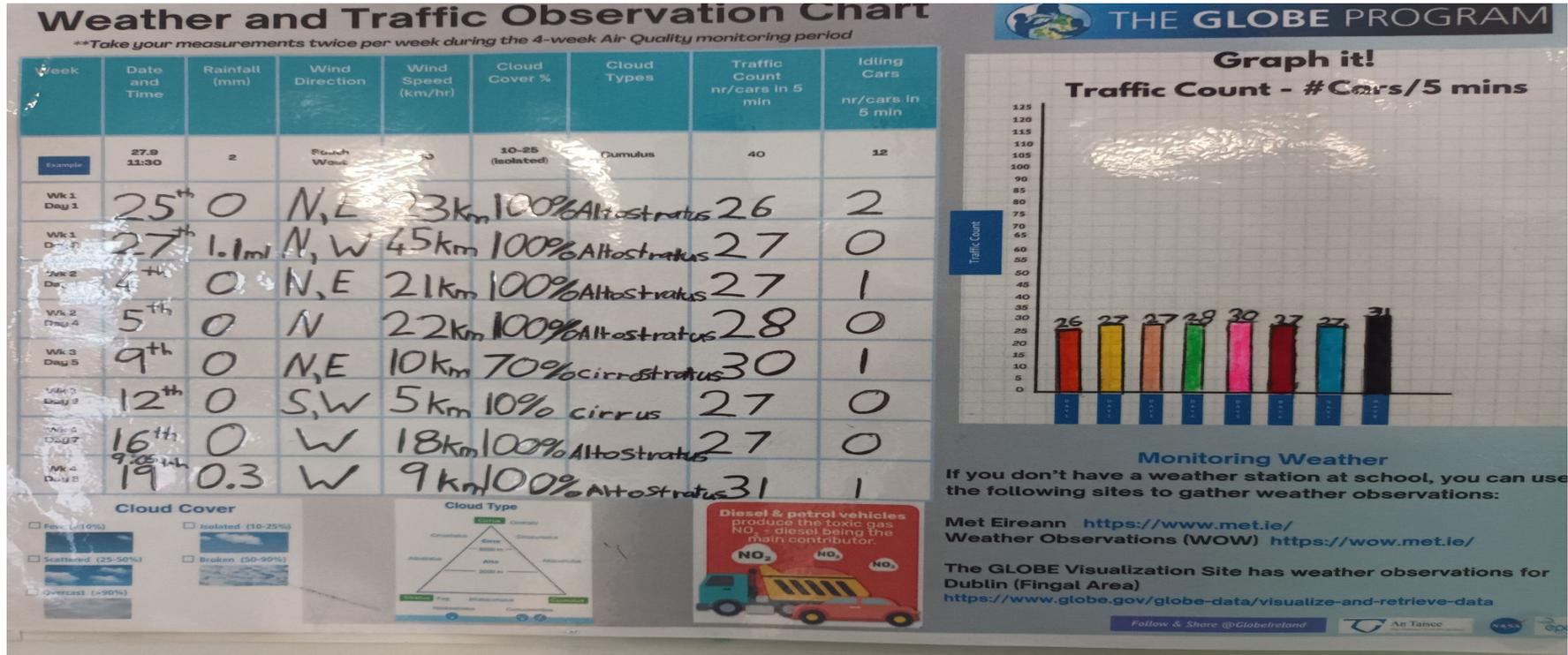
- Creating a Clean Air School Map is an important first step and should help students to visualise their school setting and encourage thinking around **traffic,**
air pollution and
active transport.
- We also identified heavy **Traffic zones** around our school to locate the main air pollution zones

Doing our traffic survey

We carried out a traffic survey twice weekly for 5 minute intervals. We carried it out at different times of the day. We never did the surveys at the beginning or end of the school day. **We got an average of 28 cars every 5 minutes.**



Our traffic and weather survey results



Analysis of our weather survey



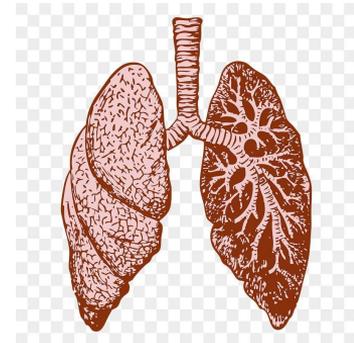
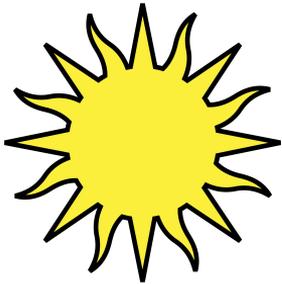
- Weather can influence traffic related air pollution levels in the air. **Wind has a big effect on air pollution as it can move pollutants from one place to another. Traffic-related pollution comes from vehicles, but it can be moved by wind to other locations.** Wind speed and wind direction are important factors when understanding what areas are most likely to record higher levels of traffic-related pollutants. In general, **the higher the wind speed, the more contaminants are dispersed and the lower their concentration at source.**



Analysis of our weather survey



- Sun can also have a big effect on air pollution. On sunny days, nitrogen dioxide reacts with the sun's rays to form a secondary pollutant, ground level Ozone (O₃). This pollutant forms a smog and reduces visibility in the atmosphere. Ground level ozone can also be dispersed by wind to other locations. There are **damaging effects from ozone on human health such as lung damage and inflammatory responses (World Health Organisation).**



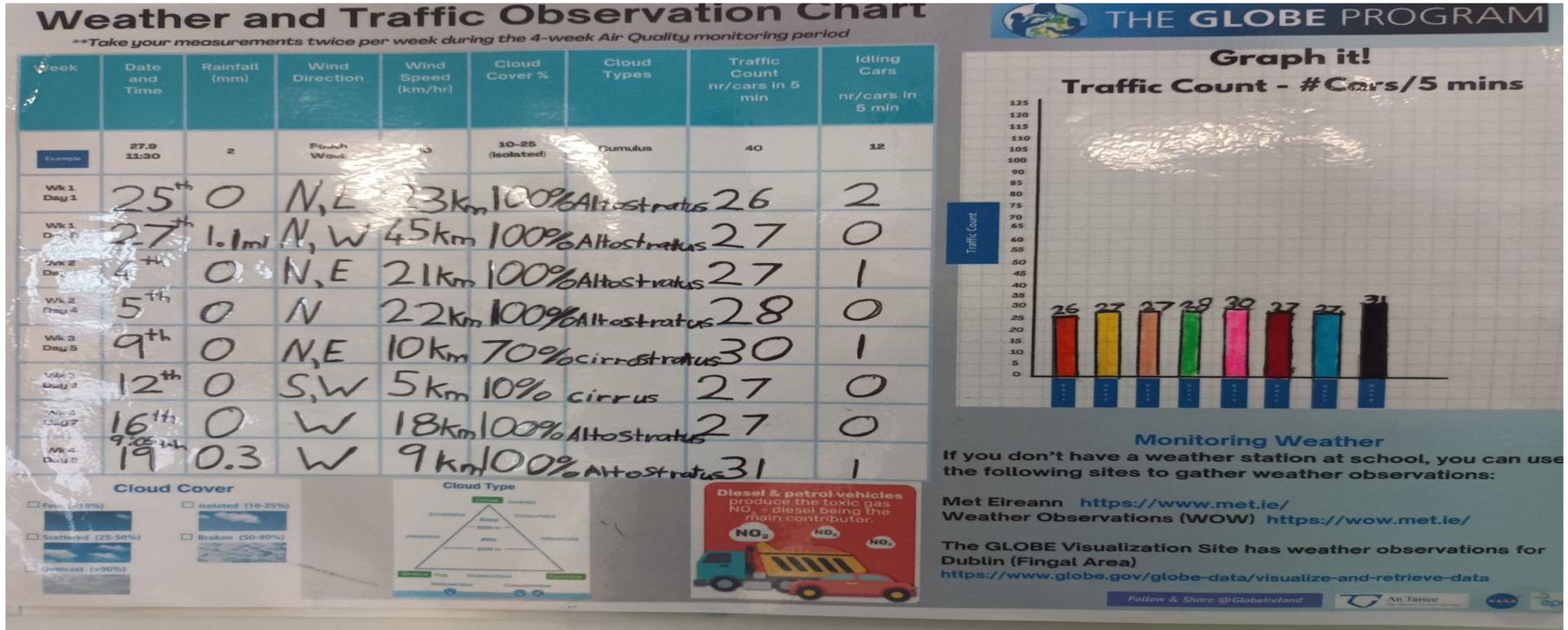
Analysis of our 'Weather survey'



- **Rain can impact air pollution levels in the air. Droplets of water wash out water-soluble pollutants and particulate matter from the air, forming an acidic rain which falls to the Earth's surface.**
- The acid rain causes surface water (rivers, ponds) to become more acidic which can have a detrimental impact on the environment.



Our weather survey



Analysis of our traffic survey

- We got an average of 27 cars every 5 minutes.
- Indirect effects of weather on air quality: Traffic: the numbers of vehicles on the roads tend to increase during bad weather, which increases the amount of traffic-related pollutants entering our air.



Analysis

- 1: Average number of cars is 27 cars.*
- 2: Average amount of rainfall (ml) is 0.175ml.*
- 3: Average number of idling cars is (0.625) less than 1.*
- 4: When there were more clouds, the wind speed was faster.*
- 5: The most common cloud type was Altostratus (6/8) 75% coverage, and cirrus is (2/8) 25% coverage.*
- 6: Most of the time the wind was going north (5/8) 62.5% and the rest of the time the wind was going west (3/8) 27.5%*





WHO and



EU Recommended Air Quality Values

Castletroy College are in the blue and green zones. We have Low to Medium NO₂ levels. We are well Below the EU recommendations, But we are slightly above the WHO recommendations.

mbc = results 'may be compromised'

$\mu\text{g}/\text{m}^3$	Colour Code	NO ₂ Pollutant Level
>40	Red	High
30-40	Orange	Medium to High
20-30	Yellow	Medium
10-20	Green	Low to Medium
0-10	Blue	Low

< 40 EU recommends not exceeding this value (annually)

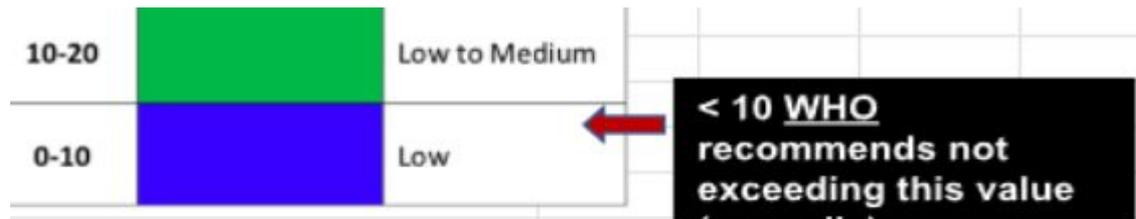
< 10 WHO recommends not exceeding this value



Castletroy College Air Quality Results

School	Tube 1	NO ₂ Result	Lab notes	Tube 2	NO ₂ Result	Lab notes
Castletroy College	2303612	15.05		2303638	8.83	

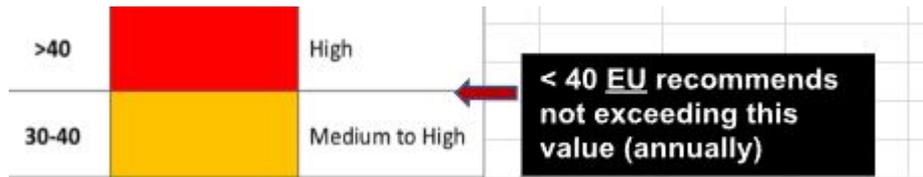
- The recommended **Air Quality NO₂ levels** for the **WHO** are **less than 10 micrograms per metres cubed**.
- Our **first test test** which was located at the front of the school, beside the traffic congestion exceeded this value. Our **NO₂ levels** were **15.05 micrograms per metres cubed**. Our hypothesis was correct, we thought the levels would be quite high as there is a lot of traffic congestion at the front of the school.
- Our **2nd test test** which was located in the inner courtyard, away from the traffic congestion read **8.83 micrograms per metre cubed** of NO₂, which is in the recommended range for the WHO. We also predicted this value would be lower than the 1st test tube as it was located away from the traffic congestion and was placed in an area with lots of plants and tree's.



Recommended values for the EU



The recommended NO₂ levels for the EU are much higher than that for the WHO. They recommend that no values of NO₂ should exceed 40 micrograms per metre cubed. I am delighted to say that castletroy college NO₂ levels are much lower than this. The EU and the WHO have very different recommendations.



Comparing our results Air Quality Experiment



to other schools involved in the

There were 160 schools in total involved in the air quality experiment.

The 1st test tube (traffic congestion area) results had a range of 0.57 to 31.41

An analysis of all the schools results for test tube 1 are:

We had a result of 15.51 which was well above average.

✓	Sum: 1342.78
	Avg: 8.83
	Min: 0.57
	Max: 31.41
	Count: 152
	Count Numbers: 152

Comparing our results Air Quality Experiment



to other schools involved in the

There were 160 schools in total involved in the air quality experiment.

The 2nd test tube (clean area away from traffic) results had a range of 0.57 to 28.38

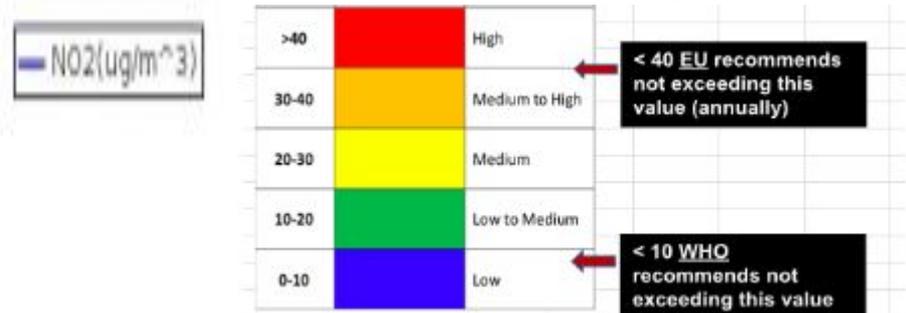
An analysis of all the schools results for test tube 2 are:

We had a result of 8.83 which was a little above average.

✓ Sum: 1179.62
Avg: 7.81
Min: 0.57
Max: 28.38
Count: 151
Count Numbers: 151

What would happen our NO2 levels if we had little or no traffic?

- We looked at the **NO2 levels** over **covid** as there was very little traffic on the roads. We wanted to see if there was a decrease in the NO2 levels over covid.
- We contacted **Simon Jenning** from the **Air Quality section of Limerick County council** to see if he had any data of NO2 levels during the covid period.
- We looked NO2 levels in **O' Connell Street, Limerick in March - April 2020 over lockdown**
- **The range of values were 5.5 - 40**



Analysis of data of NO₂ levels on lockdown

Why is there such a huge range?

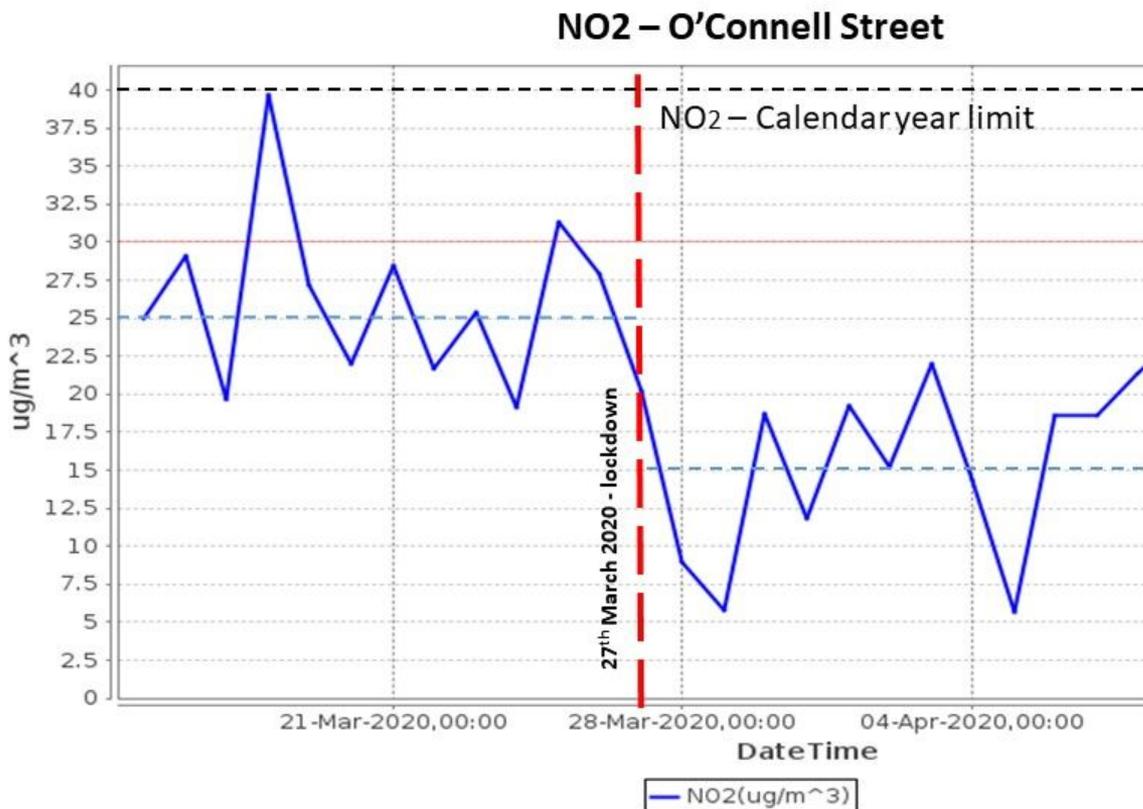
Lockdown hit on the 27th of March 2020. Overnight the levels went from

A range of 20-40 to a range of 5 -20



There is a very obvious decrease in the NO₂ levels recorded as lockdown hit.

COVID Impact: AQ on O'Connell Street – 1st Lockdown



Speech of Taoiseach Leo Varadkar 27 March 2020

Good Evening,

Tonight, I want to speak to you about the next stage in our national response to the Coronavirus Emergency.

Before I do so, I want to express my condolences to the families and friends of those who passed away today – one of whom was a health care worker.

I want to thank all of you for continuing to abide by public health advice.

By doing so, you are saving lives and protecting our health service and its staff.

Once again, thank you to everyone who is working as part of this Great National Effort whether at work or working from home.

Our country is rising to this challenge.

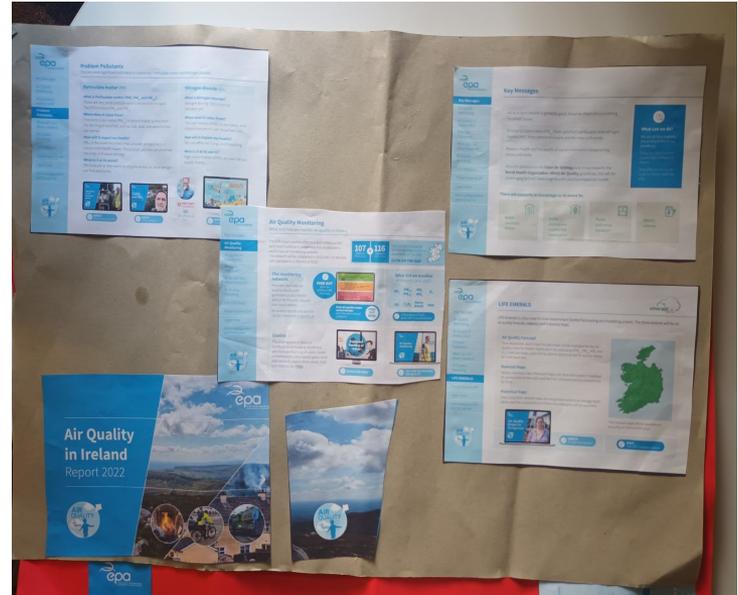
I am convinced that we shall prevail.

At the beginning of this emergency, I told you that there would be difficult days ahead.

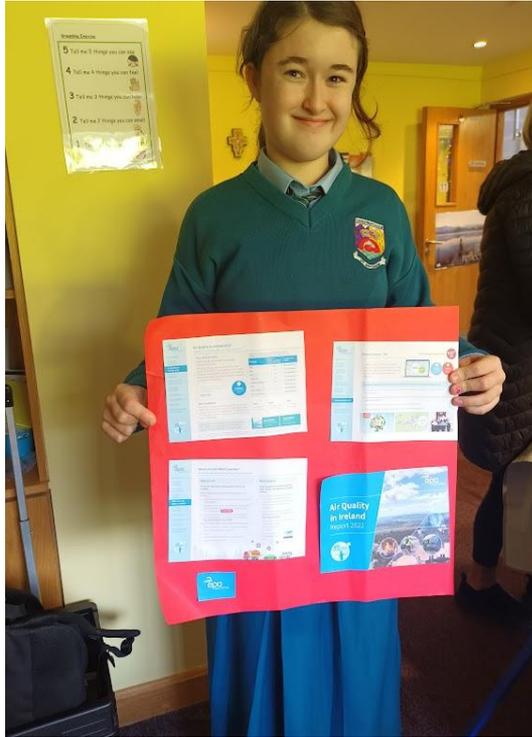
Making posters on Air Quality Report 2022 EPA



We displayed these posters on our green schools notice board to educate our entire school.

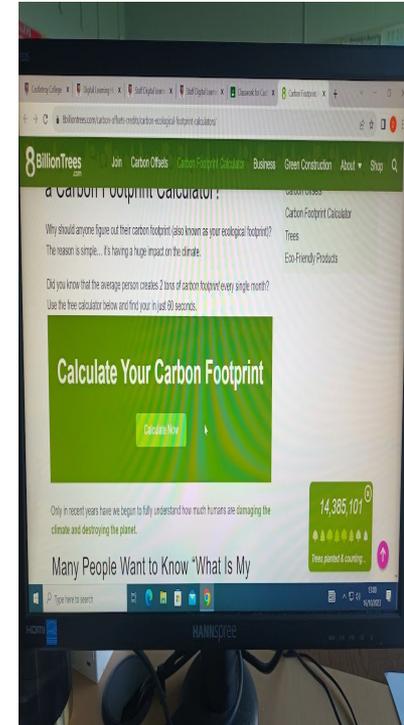
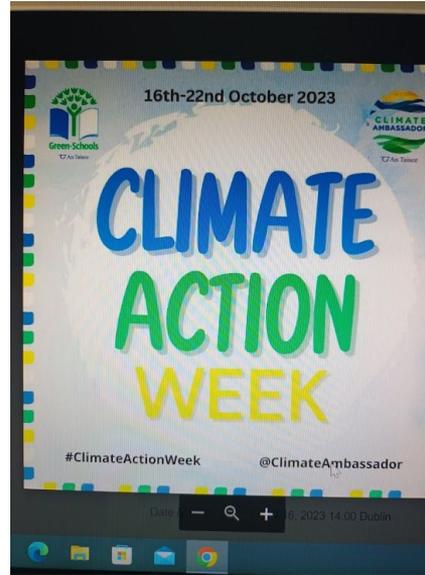
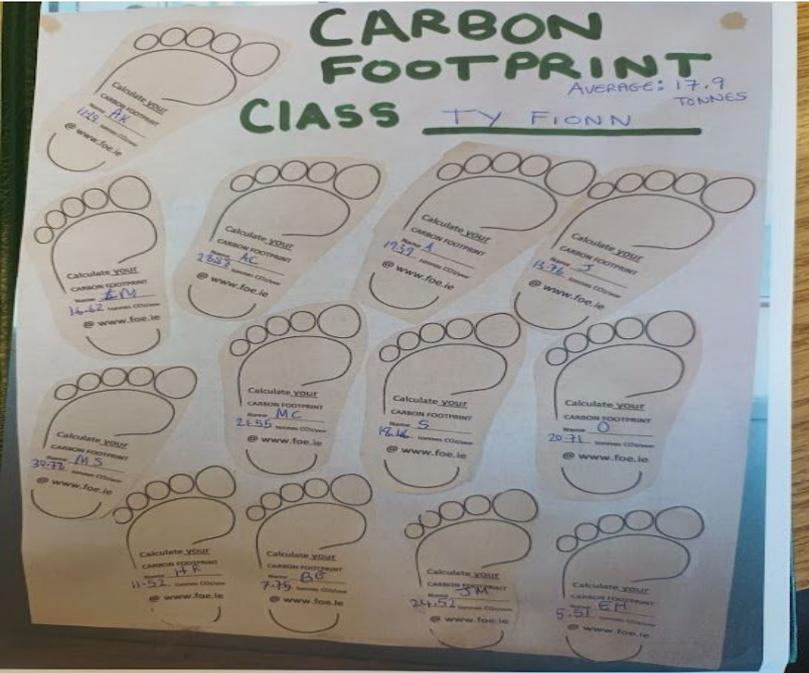


Making posters on Air Quality Report 2022 EPA



Climate Action Week

We made carbon footprints to educate pupils on how each person can improve air pollution based on their actions.



Our Action Plan



We sent a ppt  to all Science and Geography teachers to show our air pollution project and to gather some ideas for our school action plan.

See copy of email below:

Please find attached a ppt to show to pupils, if you wish. This topic is very relevant in subjects such as science and geography. Our green schools team are currently making a clean air action plan for our school and we are putting together a ppt on our results based on our air pollution experiment, our weather and traffic surveys which we will share with you once complete. Our Green - Schools team would be very grateful if you could put together some ideas on how to make our school air cleaner. We maybe presenting our clean air action plan to the epa at a conference on the 7th of Dec and would love to get some ideas for our action plan. Kind regards Deirdre Carswell please share with all Geography teachers , thank you

Example of reply from science teacher

Thanks a million, lovely powerpoint!

Ideas from the class on making our school air cleaner: 1. Reduce the speed limit along College Rd. 2. Walk/cycle more to and from school. 3. Plant more trees on campus.



Treat bags to encourage & celebrate cycling to school & as a celebration of our 'newly installed covered bicycle rack'

Encouraging cycling to school by giving pupils who cycle to school treat bags .Less cars will improve our air pollution . This is one of the sustainable goals # SDG 4 & 13. Curriculum links to JC subjects eg Geography, Science, CSPE , Religion = Care of the Earth & Home Ec



Clean Air Week



#SDG 3
#SDG 13

#SDG 4
#SDG 11



Whole School Promotion via our School Intercom , Twitter, GS noticeboard and by Emailing Resources to Staff eg <https://www.globe.gov/web/ireland/home/overview-of-air-quality-campaign- Nov 2023>

1. Promotion and support from @GreenSchoolsIre which we shared on our School Twitter



Green-Schools
@GreenSchoolsIre



Running a car without going anywhere just doesn't make any sense! So, this [#CleanAirWeek](#), care about your air and switch off your engine to [#BeatAirPollution](#).

Do you know our 'No-Idling' toolkit is also available in Irish? Check it out here: buff.ly/3MJvQiU.



8:00 AM · Nov 23, 2023 · **1,633** Views



Castletroy College @Castletrc · Nov 22 · ...

From our [@GreenSchoolsIre](#) team
[#Cleanairweek](#) [#Sustainability](#)
[#SDG3](#) Good health & Well-being
[#SDG11](#) Sustainable Cities & Communities
[#SDG13](#) Climate Action
[@SDG2030](#)
[@TLC_Limerick](#) [@AnTaisce](#)
[@Limerickcouncil](#)
[@IrishSchSusty](#)
[@Worldwise_Irl](#)

2. Promotion and support from @GreenSchoolsIre which we shared on our School Twitter



Green-Schools
@GreenSchoolsIre



Happy [#CleanAirWeek](#)! We're focusing on 'No Idling' to eliminate idling outside schools to reduce emissions & [#BeatAirPollution](#). But a lot of myths rather than facts are driving the prevalence of idling in the public realm. We are busting some of those this week, stay tuned! 🙌



8:00 AM · Nov 20, 2023 · **3,256** Views



Castletroy College @Castletroy · Nov 22 · ...

From our @GreenSchoolsIre team

[#Cleanairweek](#) [#Sustainability](#)

[#SDG3](#) Good health & Well-being

[#SDG11](#) Sustainable Cities & Communities

[#SDG13](#) Climate Action

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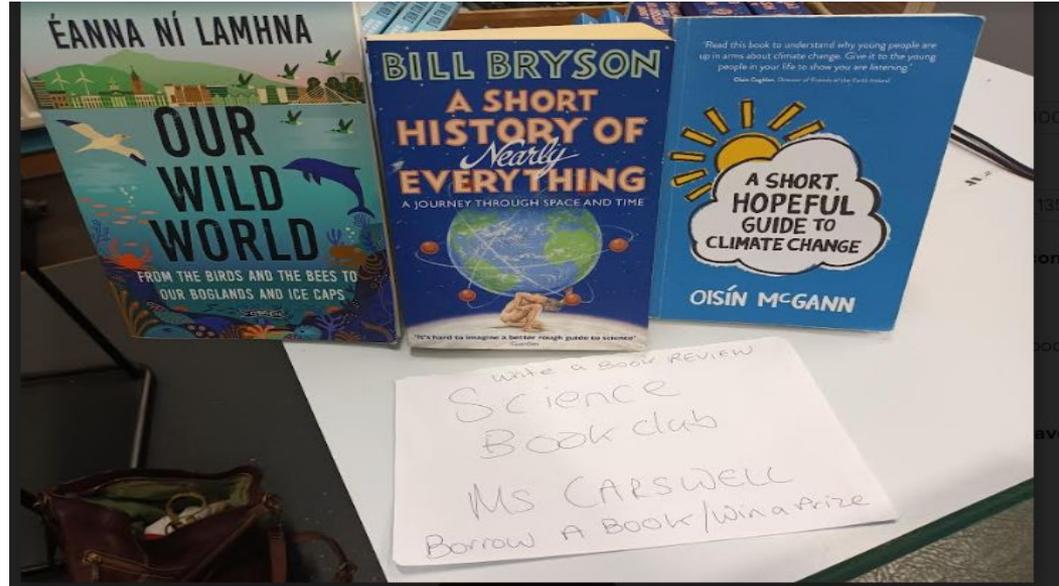
Clean Air week Stickers initiative - Mol an óige = Praise the Youth

Rewarding our students that travel to school in an a way that reduces pollution eg, walk, cycle, car pool, bus etc.,



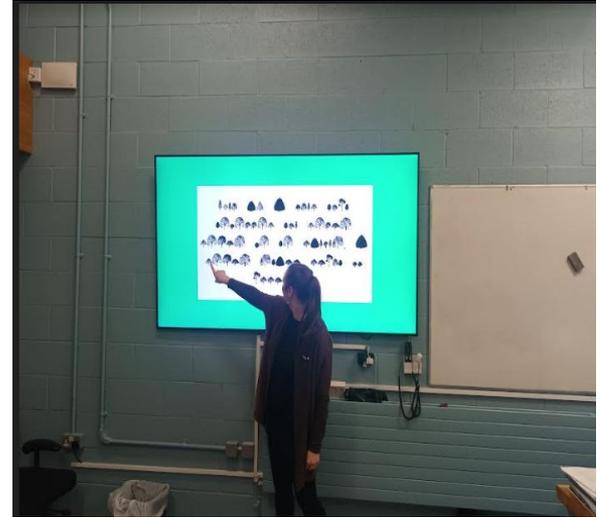
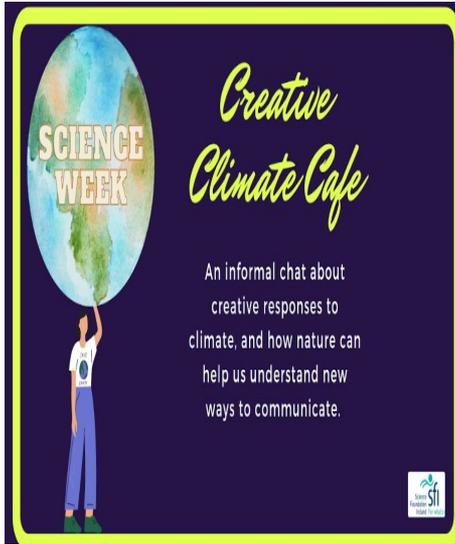
Science book club / Climate change

We encourage pupils to read books on nature and climate change. The pupils write book reviews and can win prizes.



Climate Cafe

We ran a climate cafe during science week to show pupils the importance of nature and its importance in climate change. We learnt the tree alphabet .



Air pollution poster winners

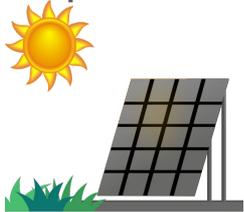


Air pollution poster competition

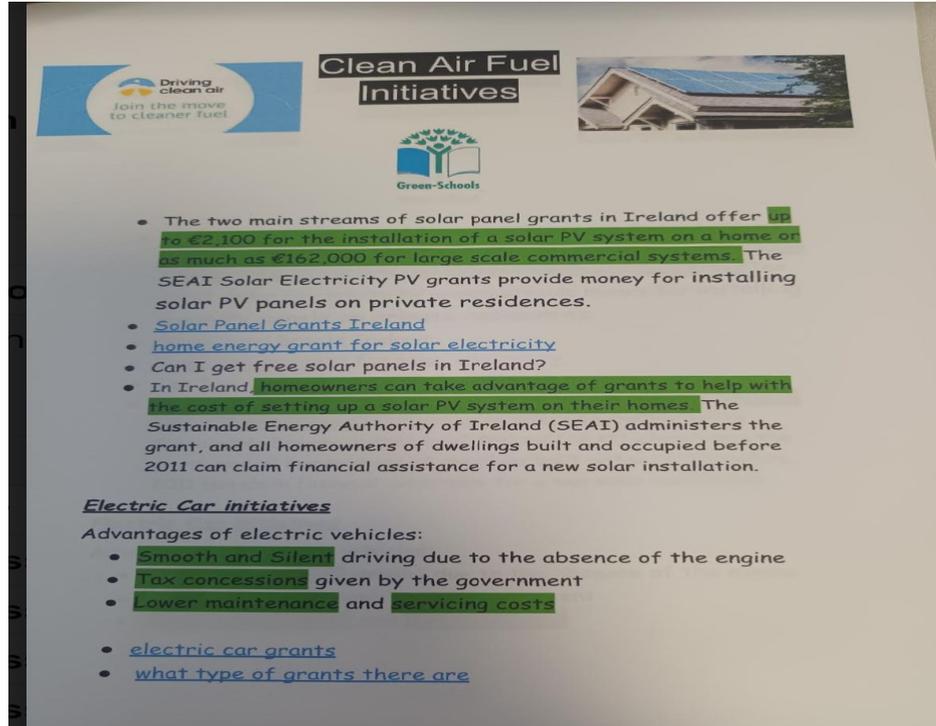


Clean Fuel initiatives run by the Irish government

- We researched any clean fuel options available and made an information leaflet on clean fuel initiatives set up by the government (eg grants for solar panels and electric cars) We sent this to all pupils (through social media) in the hope that it will encourage some households to change to cleaner fuel options.



Leaflet on clean air initiatives sent to all students in our school



Clean Air Fuel Initiatives

Driving clean air
Join the move to cleaner fuel

Green-Schools

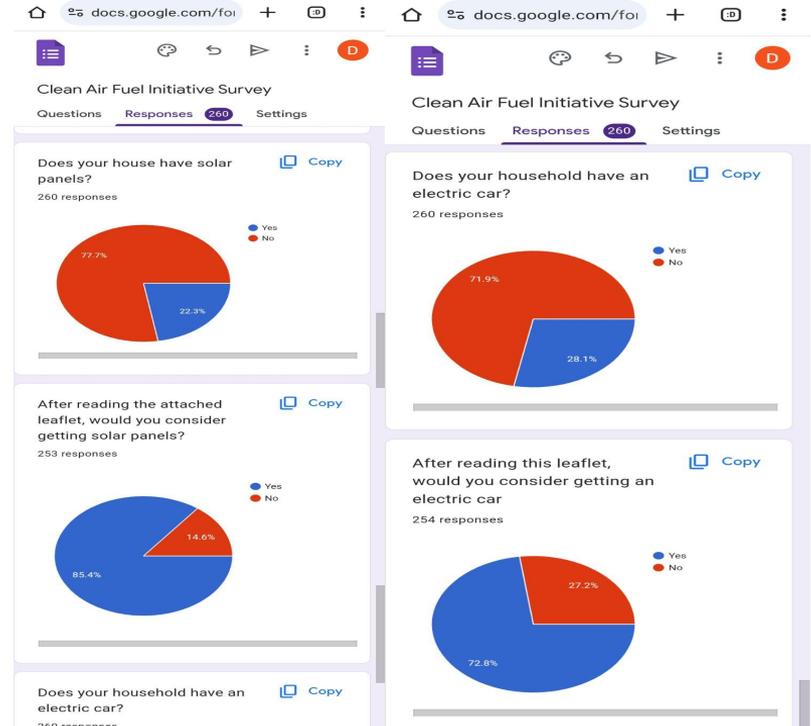
- The two main streams of solar panel grants in Ireland offer up to €2,100 for the installation of a solar PV system on a home or as much as €162,000 for large scale commercial systems. The SEAI Solar Electricity PV grants provide money for installing solar PV panels on private residences.
- [Solar Panel Grants Ireland](#)
- [home energy grant for solar electricity](#)
- Can I get free solar panels in Ireland?
- In Ireland, homeowners can take advantage of grants to help with the cost of setting up a solar PV system on their homes. The Sustainable Energy Authority of Ireland (SEAI) administers the grant, and all homeowners of dwellings built and occupied before 2011 can claim financial assistance for a new solar installation.

Electric Car initiatives

Advantages of electric vehicles:

- Smooth and Silent driving due to the absence of the engine
- Tax concessions given by the government
- Lower maintenance and servicing costs

- [electric car grants](#)
- [what type of grants there are](#)



Clean Air Fuel Initiative Survey

Questions Responses 260 Settings

Does your house have solar panels?
260 responses

Response	Percentage
Yes	22.3%
No	77.7%

After reading the attached leaflet, would you consider getting solar panels?
253 responses

Response	Percentage
Yes	85.4%
No	14.6%

Does your household have an electric car?
260 responses

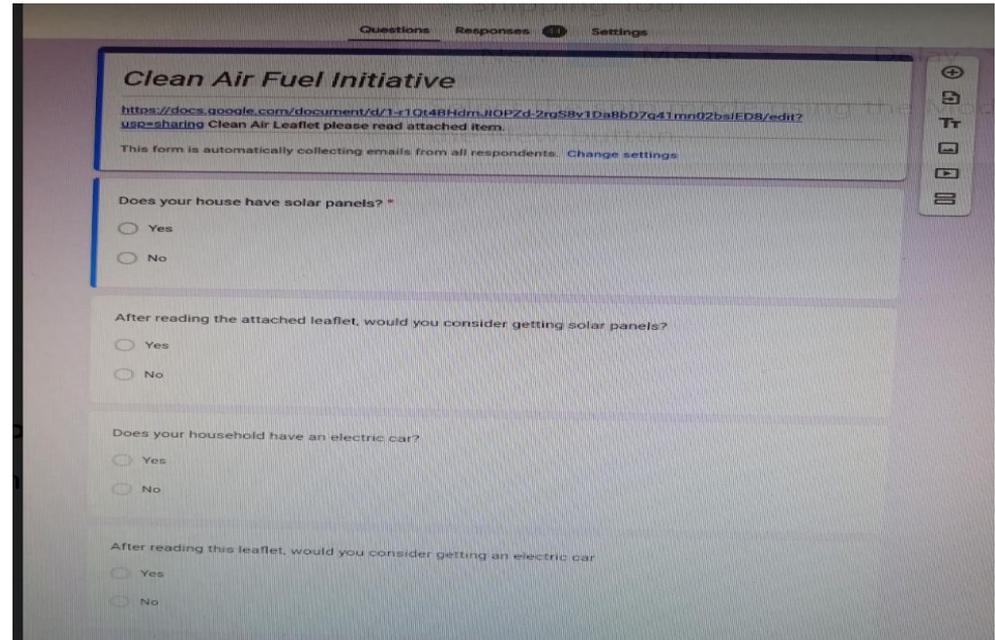
Response	Percentage
Yes	28.1%
No	71.9%

After reading this leaflet, would you consider getting an electric car?
254 responses

Response	Percentage
Yes	27.2%
No	72.8%

Survey carried out to collect data on electric cars and solar panel usage in our community

- Does your house have solar Panels?**22.3 %**
 - Does your household have an electric car?**28.1%**
- After reading the leaflet do
You think you would consider
Getting solar panels (**85.4%**)
or an electric
car?(**72.8%**)



The image shows a screenshot of a Google Forms survey titled "Clean Air Fuel Initiative". The form is displayed on a screen with a dark background. At the top, there are tabs for "Questions", "Responses", and "Settings". Below the title, there is a URL and a note: "This form is automatically collecting emails from all respondents. Change settings". The survey contains three questions, each with radio button options for "Yes" and "No".

Clean Air Fuel Initiative

<https://docs.google.com/document/d/1-r1Q148HdmJIOPZd-2rqS8v1Da8bD7q41mn02bsIED8/edit?usp=sharing> Clean Air Leaflet please read attached item.

This form is automatically collecting emails from all respondents. [Change settings](#)

Does your house have solar panels? *

Yes

No

After reading the attached leaflet, would you consider getting solar panels?

Yes

No

Does your household have an electric car?

Yes

No

After reading this leaflet, would you consider getting an electric car?

Yes

No

Limerick Co Council Air Quality Department

- We have already contacted the **Air Quality Department in the Limerick County Council** and received lots of great data from them.
- We hope to interview the Air Quality Limerick County Council team.
- We asked them to give a talk to our green schools team on all the initiatives which they are involved in and to help us improve our Air Quality Action Plan.

We have organised that Simon Jennings from the Co Council will visit our school at the end of February



OUR ACTION PLAN



Completed initiatives:

- We made posters on the Air Quality Report 2022 EPA and displayed them on our green school notice board, to educate all the pupils and teachers.
- We made carbon footprints to educate pupils on how each person can improve air pollution based on their actions.
- We sent a ppt to all Science and Geography teachers to show our air pollution project and to gather some ideas for our school action plan. We got some great ideas back.
- We gave out treat bags to all cyclists to encourage them to cycle to school & to celebrate our newly installed covered bicycle rack.
- We gave out Free stickers for all classes to acknowledge & encourage pupils to walk to school, to carpool, take a bus or to cycle. The stickers were available to all staff in the staffroom. Teachers were asked to put stickers into pupils journals as a reward. We did this as an initiative for clean air week. GS Students also gave out stickers at two lunchtimes.

LCCC Air Quality Monitors (Indicative)

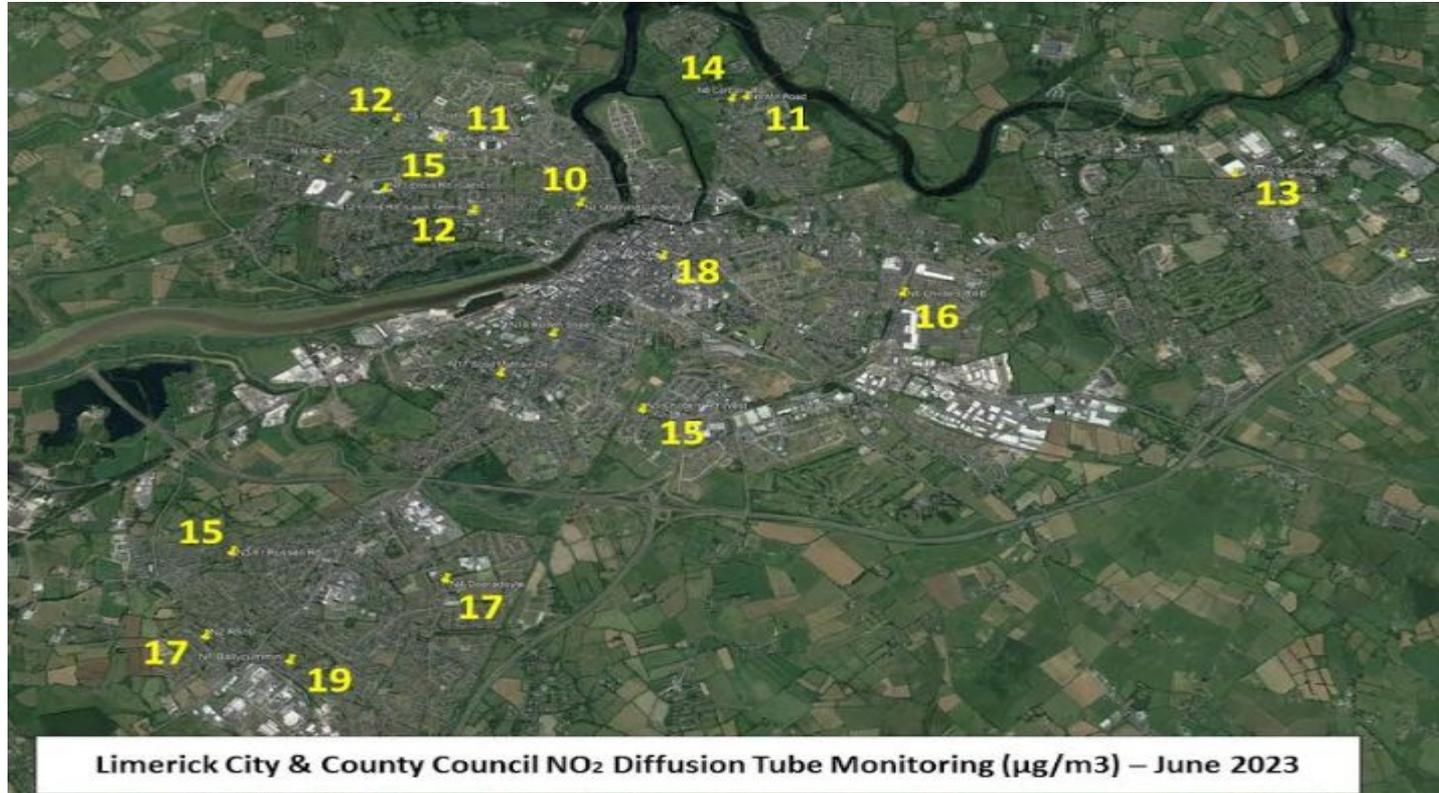
The Limerick county council have set up many air monitoring stations in the limerick area. Some close to castletroy college are

- 1)O' Connell Street
- 2) Mungret
- 3) Castletroy

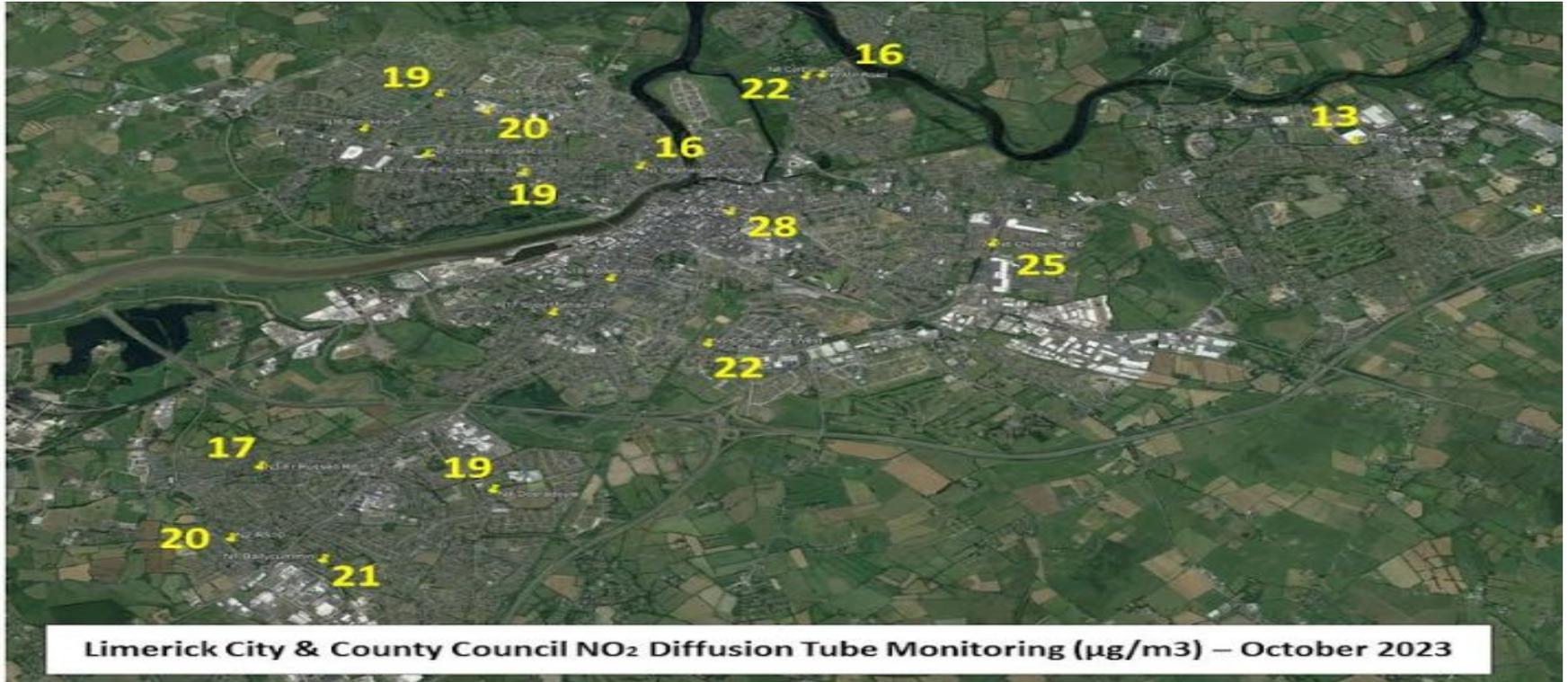
We have a new Air monitoring station in our school grounds



Map of air quality monitors in Limerick



Map of air quality monitors in Limerick



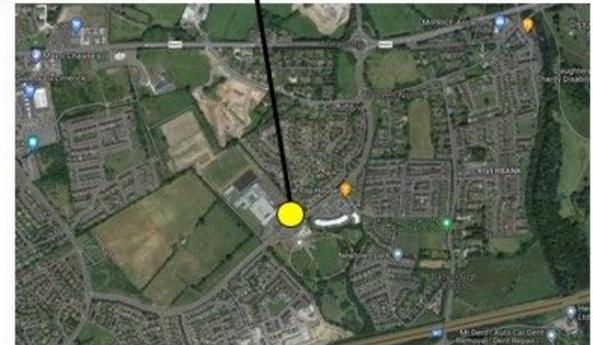
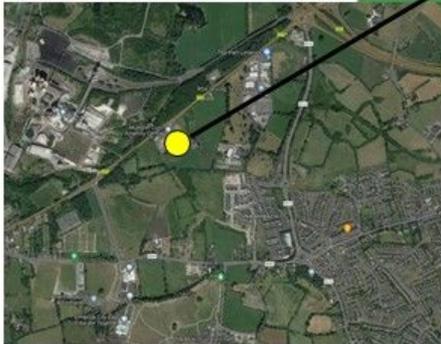
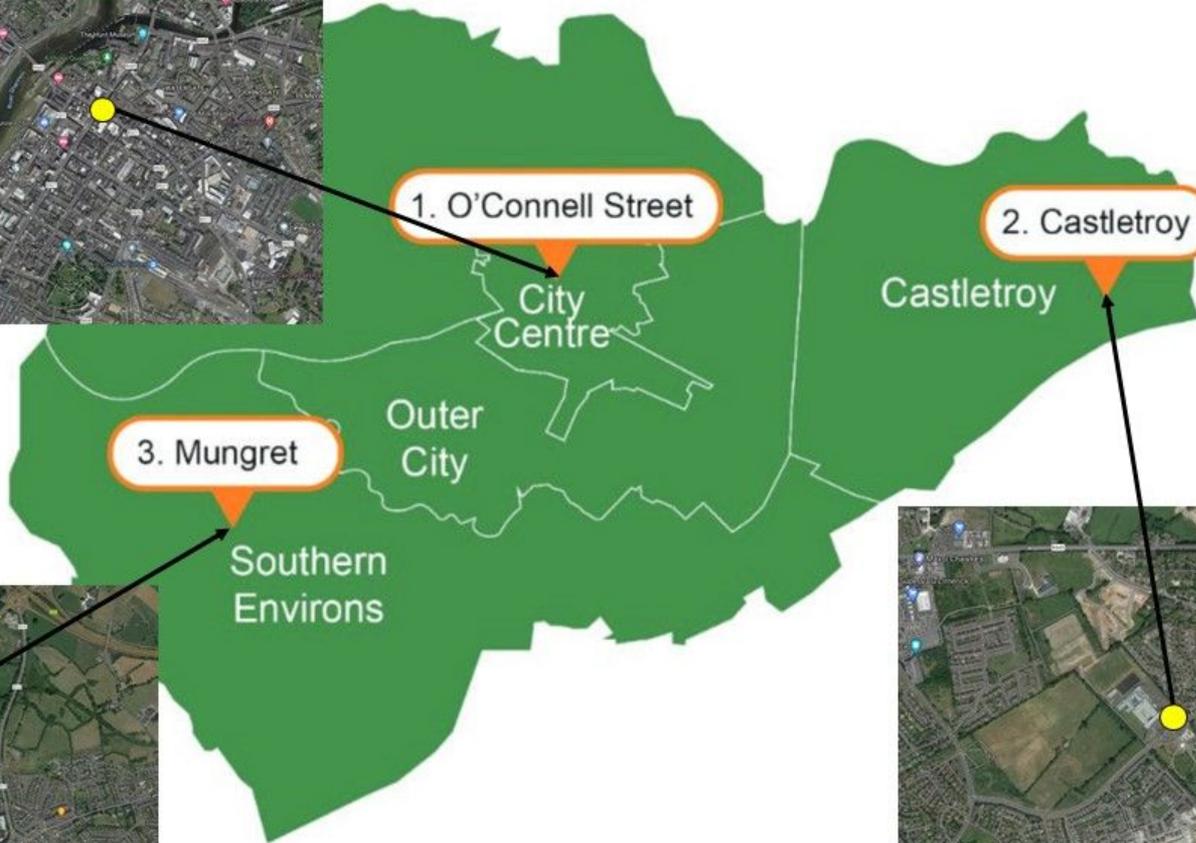
LCCC Air Quality Monitors (Indicative)



1. O'Connell Street

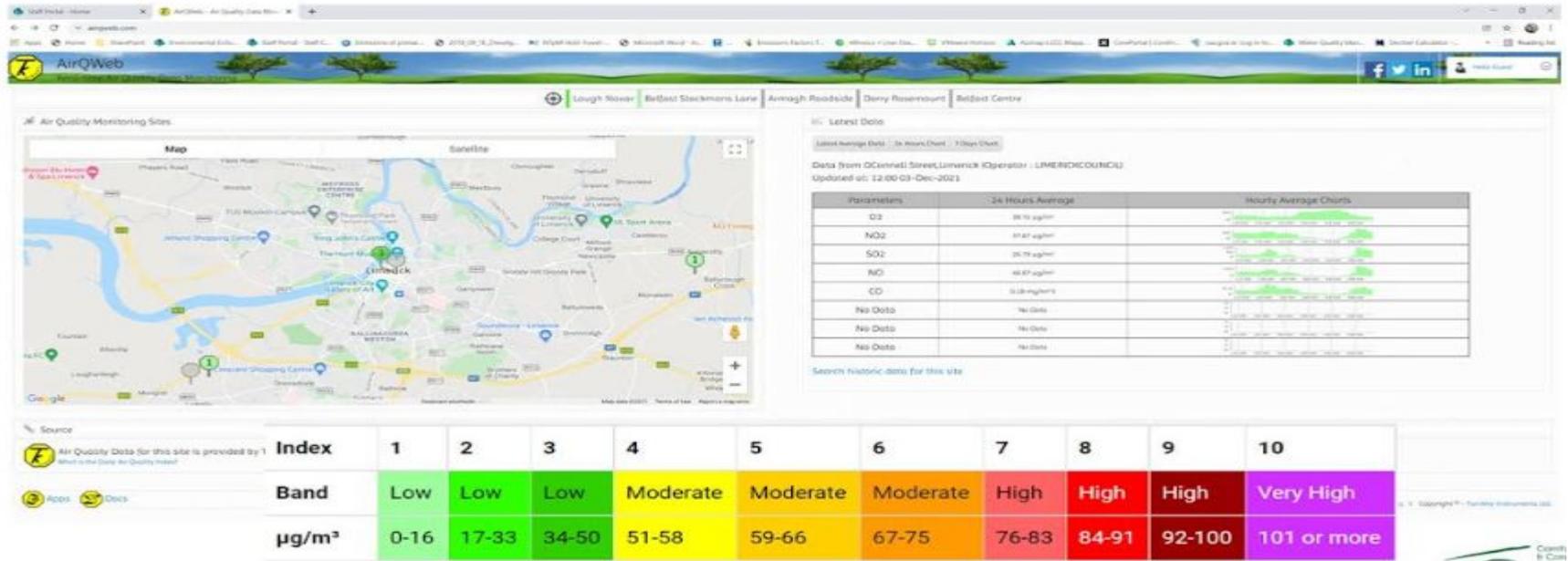
2. Castletroy

3. Mungret

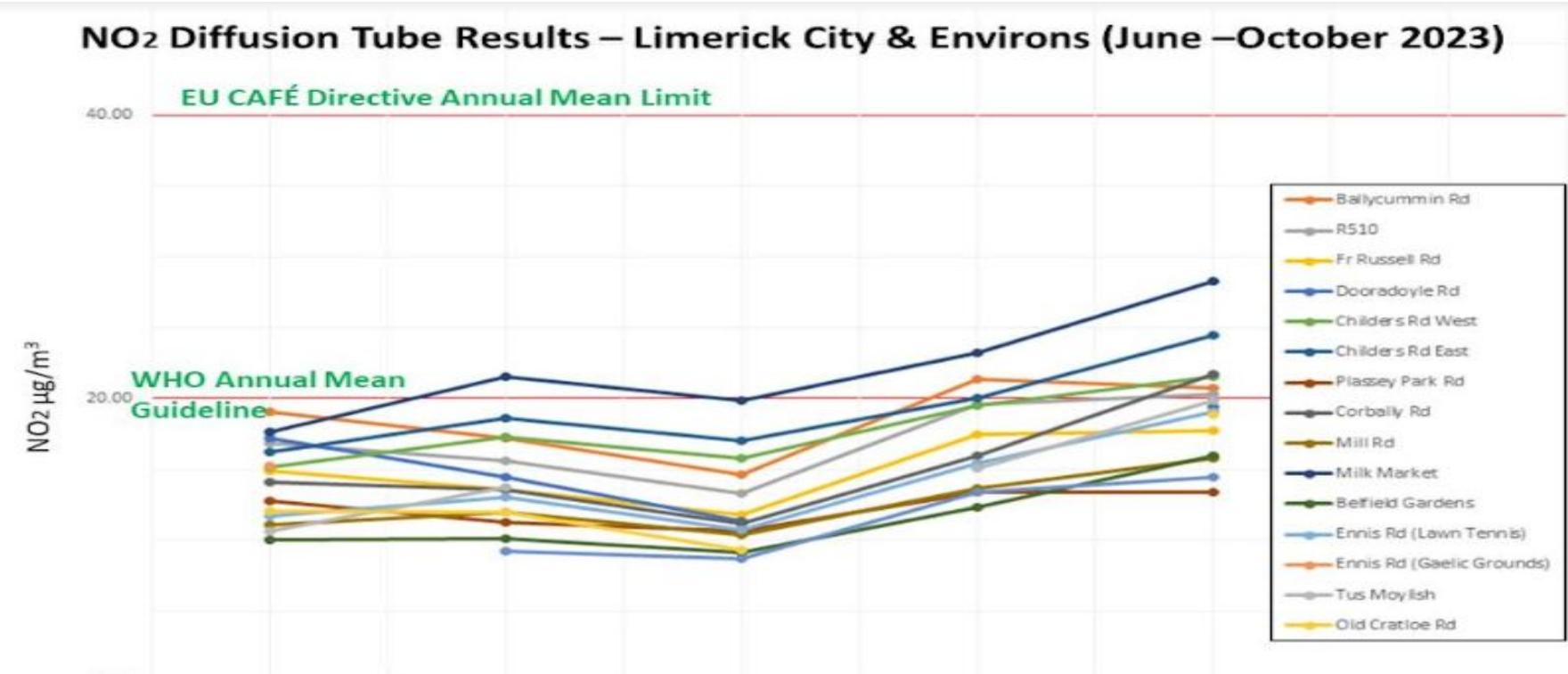


Analysis of air quality in Limerick

LCCC Air Quality Monitors – airqweb.com

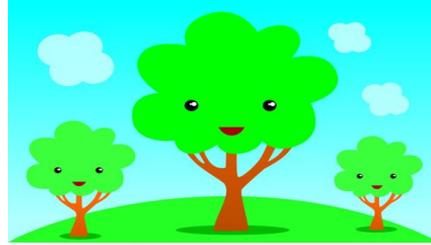


Data collected in the Limerick area



Future initiatives

More plants and trees



- We plan to contact the county council and ask for some free trees, shrubs and plants for our new Biodiversity Garden which will help to improve our Air Quality results.
- We will also contact An Choill Beag to ask for free shrubs and trees. This is a great initiative already set up in our school. Thank you Ms Hanley
- We will contact Woodies DIY and ask for any free flowers for our garden.



Future initiatives

- We will write to the Minister for transport, Eamon Ryan to ask if a local mini bus could be funded to collect pupils from the local housing estates. This will improve traffic congestion in the mornings and after school.



SDG's

<https://sdgs.un.org/goals>



Our Action Plan

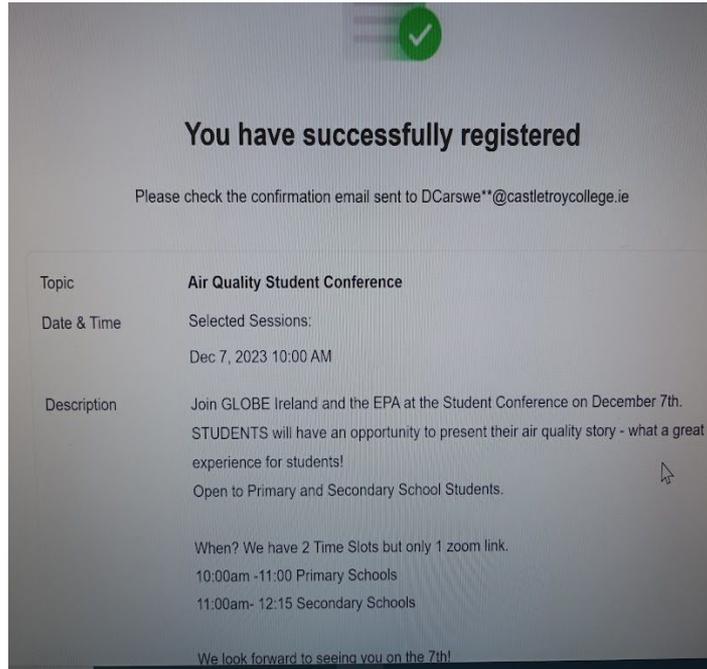


- We ran a Climate Cafe during science week and talked about the importance of nature and climate change.
- We have a science book club, we encourage pupils to read books on nature and climate change. Pupils can write a book review and win a prize.
- Community Links = promotion of our work via our School intercom, Twitter, Google classroom and Staff emails
- SDG Links = We linked all our initiatives where possible to the SDG Goals eg SDG 3,4,7,11 & 13 ,

We have many more initiatives which we plan to implement this coming semester

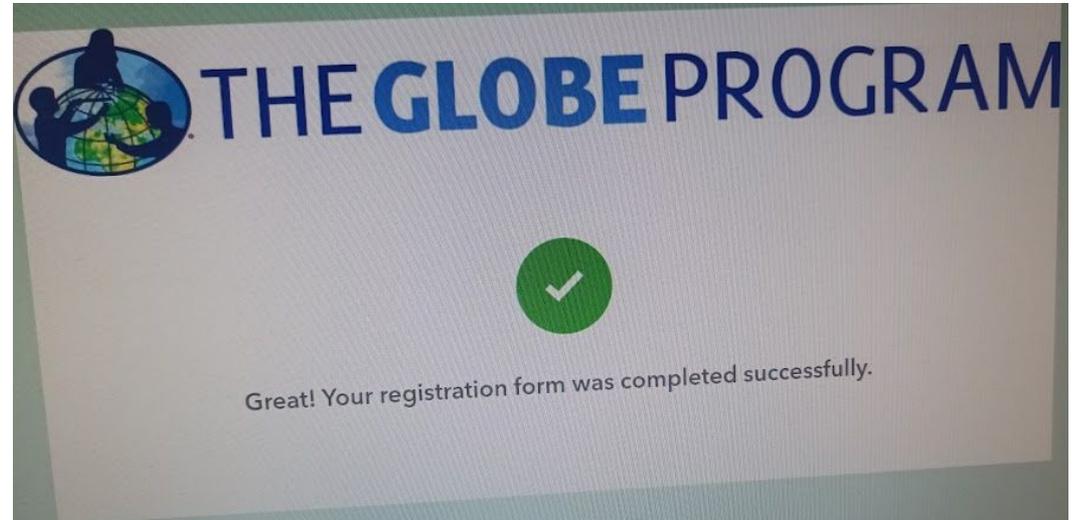
Air quality student conference 7th December

We applied to attend the air quality student conference and hopefully we will be chosen to present our air quality survey.



A screenshot of an email confirmation page. At the top, there is a green checkmark icon. The main heading reads "You have successfully registered". Below this, it says "Please check the confirmation email sent to DCarswe**@castletroycollege.ie". The email content is structured as follows:

Topic	Air Quality Student Conference
Date & Time	Selected Sessions: Dec 7, 2023 10:00 AM
Description	Join GLOBE Ireland and the EPA at the Student Conference on December 7th. STUDENTS will have an opportunity to present their air quality story - what a great experience for students! Open to Primary and Secondary School Students. When? We have 2 Time Slots but only 1 zoom link. 10:00am -11:00 Primary Schools 11:00am- 12:15 Secondary Schools We look forward to seeing you on the 7th!



A screenshot of a registration confirmation page for "THE GLOBE PROGRAM". At the top left is a logo featuring two silhouettes of people looking at a globe. The text "THE GLOBE PROGRAM" is written in large, bold, blue capital letters. In the center, there is a green circular icon with a white checkmark. Below the icon, the text reads "Great! Your registration form was completed successfully."

European commission proposal



Brussels, 26.10.2022
COM(2022) 542 final
ANNEXES 1 to 11

ANNEXES

to the

**Proposal for a Directive of the European Parliament and of the Council
on ambient air quality and cleaner air for Europe (recast)**

{SEC(2022) 542 final} - {SWD(2022) 345 final} - {SWD(2022) 542 final} -
{SWD(2022) 545 final}

0 new

ANNEX I AIR QUALITY STANDARDS

SECTION 1 - LIMIT VALUES FOR THE PROTECTION OF HUMAN HEALTH

Table 1 – Limit values for the protection of human health to be attained by 1 January 2030

Averaging period	Limit value
PM_{2.5}	
1 day	25 µg/m ³ not to be exceeded more than 18 times per calendar year
Calendar year	10 µg/m ³
PM₁₀	
1 day	45 µg/m ³ not to be exceeded more than 18 times per calendar year
Calendar year	20 µg/m ³
Nitrogen dioxide (NO₂)	
1 hour	200 µg/m ³ not to be exceeded more than once per calendar year
1 day	50 µg/m ³ not to be exceeded more than 18 times per calendar year
Calendar year	20 µg/m ³
Sulphur dioxide (SO₂)	
1 hour	350 µg/m ³ not to be exceeded more than once per calendar year
1 day	50 µg/m ³ not to be exceeded more than 18 times per calendar year
Calendar year	20 µg/m ³
Benzene	
Calendar year	3,4 µg/m ³
Carbon monoxide (CO)	
maximum daily 8-hour mean ⁽¹⁾	10 mg/m ³
1 day	4 mg/m ³ not to be exceeded more than 18 times per calendar year