Investigating Air Quality Around Our School

Research Proposal for the GLOBE Program – Air Quality at St Francis School Victoria Gozo

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What Is a Research Proposal?

Understanding the components and purpose of our scientific inquiry submission to the GLOBE Program

01

Explains what we want to investigate and why the study is important

02

Outlines how data will be collected and analysed

03

It does **not include final results**

04

Submitted to receive feedback for further development

05

Prepared according to **GLOBE VSS guidelines**

Background

ContextualiSing the environmental factors and location influencing air quality at St Francis School

Air quality affects children's health and wellbeing

School is located in the centre of Victoria, Capital City of Gozo ()

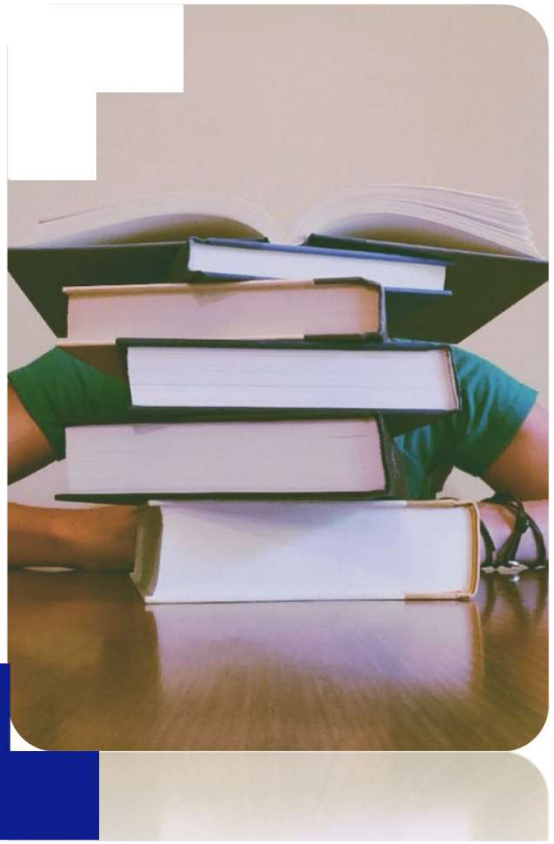
Close to busy roads and main bus terminal

2022 GLOBE study showed high NO_2 levels

December data collected to explore possible changes

Research Question

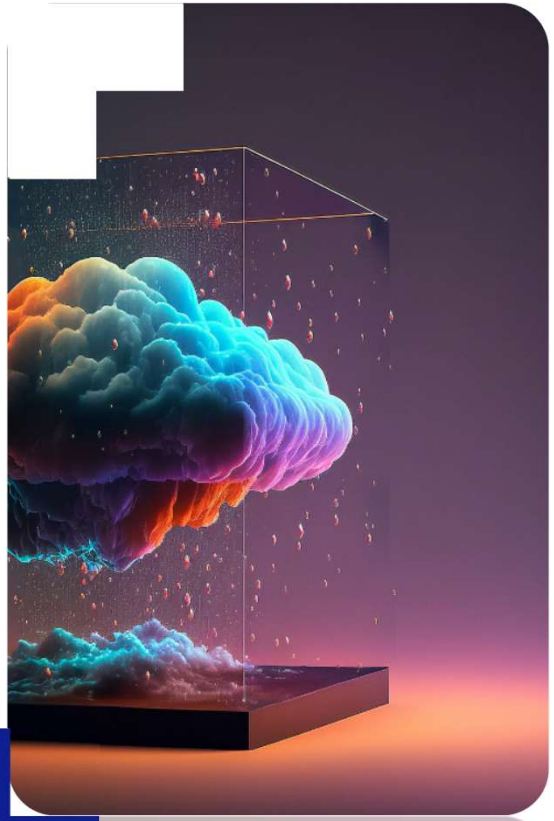
The primary inquiries guiding our investigation into local air quality variations and comparisons



Are there observable changes when compared with previous NO_2 data after 3 years?

Hypothesis

Predictions regarding the correlation between traffic activity and air pollution levels



1. Air quality is lower during peak traffic times
2. Traffic-related activity increases NO_2 levels
3. Awareness and school actions may contribute to change

Description of Study Site

Key characteristics of our school environment in Victoria, Gozo, relevant to air quality

Location: Victoria, Gozo, Malta

Urban school environment

Near main roads and bus terminus

Mediterranean climate

Suitable site for traffic-related air quality study

Data Collection (December 2025)

A summary of the active inquiry phase where students monitored school surroundings

- Data collected during December (4-week period)
- Observations on school days (Monday - Friday)
- Same time of the day
- Students actively involved in the process
- Teacher-guided inquiry approach

GLOBE Protocols & Tools

Standardized methods and materials used for atmospheric observations around the school

GLOBE ATMOSPHERE PROTOCOLS

VISUAL AIR QUALITY OBSERVATIONS - TRAFFIC COUNTING

OBSERVATION SHEETS FOR RECORDING DATA, AND DIFFUSION TUBE - TO ABSORB AIR POLLUTANTS

SCHOOL TERRACE ON MAIN GATE STREET AS PRIMARY OBSERVATION POINTS

Use of Previous Data (2022)

Leveraging data from the Air Detectives study to identify pollution trends

NO_2 DATA AVAILABLE FROM THE 2022 GLOBE AIR DETECTIVES STUDY

2022 DATA USED AS A BASELINE FOR OUR PROPOSAL

DECEMBER DATA COLLECTED SPECIFICALLY FOR COMPARISON

SUPPORTS IDENTIFICATION OF POSSIBLE LONG-TERM TRENDS

How NO2 Will Be Compared

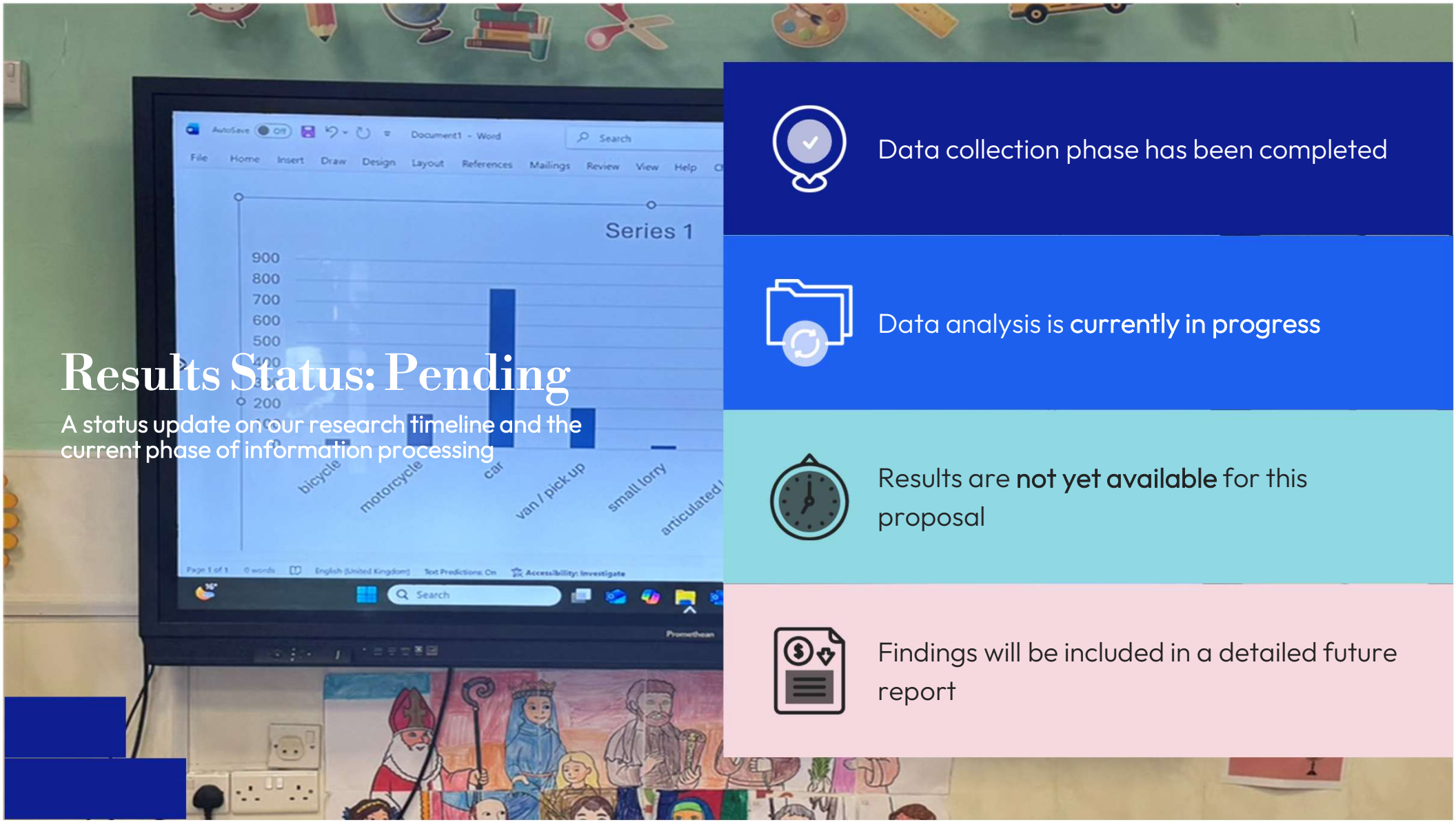
The methodology for analyzing variations in nitrogen dioxide levels relative to traffic

December NO_2 observations will be compared with 2022 baseline NO_2 data

Comparison will focus on pollution levels

Analysis by time of day and traffic influence

Patterns and differences will be identified through analysis after 3 years.



Results Status: Pending

A status update on our research timeline and the current phase of information processing

Data collection phase has been completed

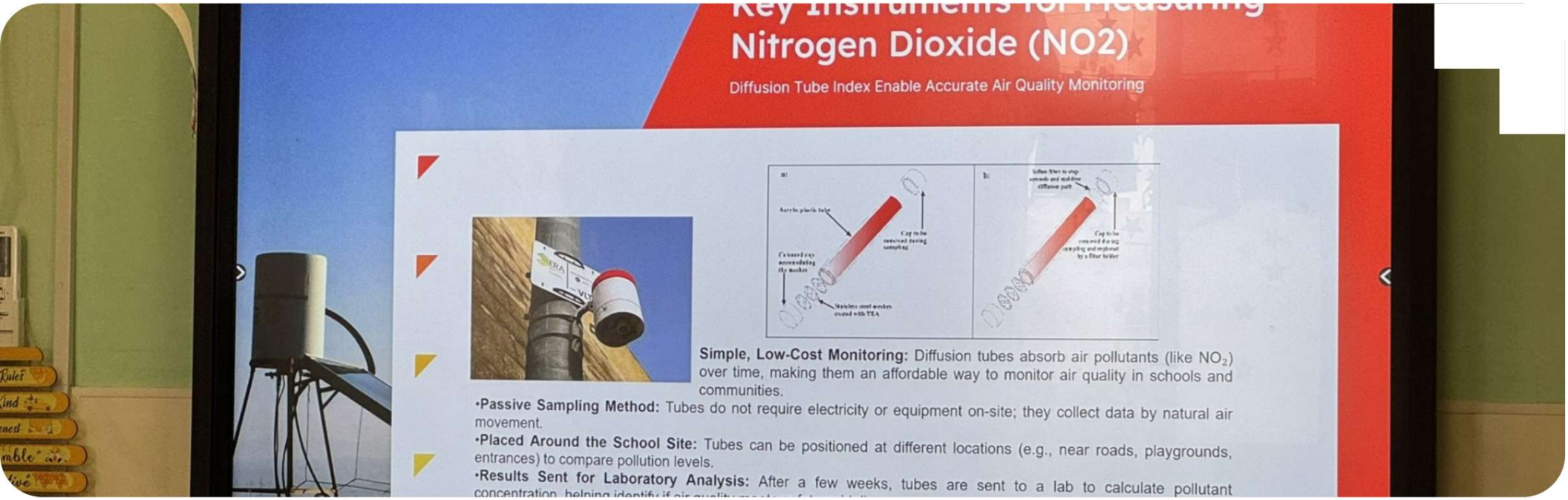
Data analysis is **currently in progress**

Results are **not yet available** for this proposal

Findings will be included in a detailed future report

One-Sentence Justification

This project is submitted as a research proposal because data collection has been completed, but analysis and comparison with baseline NO2 data are still ongoing.



Expected Outcomes

The positive impacts on student learning and community environmental awareness

SDG Alignment

How our air quality research contributes to the United Nations Sustainable Development Goals

SDG 3: Good Health and Wellbeing

SDG 11: Sustainable Cities and Communities

SDG 13: Climate Action

SDG 4: Quality Education

Challenges & Considerations

Addressing variables such as weather and learner guidance in our research methodology

Results not yet available for inclusion

Weather conditions may affect visual observations

Young learners require ongoing teacher guidance

After three years of data collection, differences in traffic flow and congestion can be identified, offering insights into the effectiveness of sustainable transport initiatives and changes in community travel behaviour.

Next Steps

The roadmap for completing our analysis and communicating findings to the community

Analyse December air quality data

Compare with **2022 NO_2 baseline data**

Identify patterns and changes over time. This would provide a clearer picture of evolving traffic trends and support more informed future planning.

Discuss findings with students and share with school community

Upload data to the official GLOBE database

References

Research based on The GLOBE Program Protocols Air Quality Guidelines and St Francis School 2022 study.

GLOBE Program. (n.d.). Air detectives: Exploring air quality at St. Francis School, Victoria.

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