Air Quality

Citizen Science Investigation: Teachers Notes

- Citizen science is a fun and interesting way of getting people involved in understanding and tackling environmental issues. By collecting scientific data we can better understand issues such as air pollution.
- This resource outlines 3 scientific investigations you can do with your students on the school grounds and on the streets outside your school, to assess air quality and levels of pollutants.

The key objective is for students to use 3 different scientific investigations to make an assessment of the air quality around your school.

Introductory work

Group discussion

Why is clean air important?
What stops our air being clean?
What could be some of the health risks surrounding air pollution?

Research

Students could spend time researching common pollutants (particulate matter, nitrogen oxide, ground level ozone and other greenhouse gases).

Instructions

- The student resource contains an information sheet with full instructions for each investigation, alongside record sheets for recording their observations.
- Challenge the students to collect data to identify when their fellow students are at the highest risk of exposure to air pollution.

Students should consider:

- Different locations to investigate
- What locations are like at different times of day
- Number of pollution sources
- If vehicles spend time idling near to their chosen locations

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National Curriculum Links

Science – Experimental skills and investigations

Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.

Science – Analysis and evaluation

Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.

Geography – Fieldwork

Use fieldwork in contrasting locations to collect, analyse and draw conclusions from data, using multiple sources of complex information.

Additional guidance

Imperial College London has an excellent lichen identification leaflet in addition to our resource:

https://www.imperial.ac.uk/media/imperial-college/research-centres-and-groups/opal/AIR-4pp-chart.pdf

Their tree identification chart may also be useful:

https://www.imperial.ac.uk/media/imperial-college/research-centres-and-groups/opal/Tree-Identification-guide-8pp-chart_corrected.pdf

Follow up work

- Having investigated the air quality in your local area, challenge your students to think of creative and interesting ways to get every member of the school community to take action on air:
- What are some of the things we can do as individuals to reduce our emissions? How do our travel choices impact on air quality?
- Encourage students to write an article for the school newsletter or website about their findings and how the community can take action.