Imperial College London

# Investigating Air Pollution with Sticky Tape Peels

OPAL EXPLORE NATURE

Introduction

It is often difficult to measure air pollution in the field, as often sophisticated equipment and long-term monitoring are needed to obtain worthwhile data. One way to overcome this problem is to choose an aspect of air pollution which can easily be measured and combine it with secondary data available on the Internet.

Particulate pollution (i.e. soot) adhering to surfaces close to a road can rapidly be measured using nothing more complicated than sticky tape. Immediately this introduces a number of variables which could be investigated, such as the direction in which the surface is facing, its height off the ground and its distance from a point source of pollution.
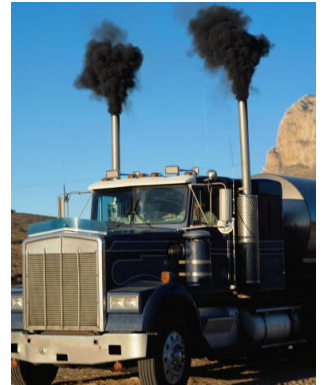

Procedure

Press the sticky side a 2cm length of tape firmly onto the bark of the tree, leave for 10 seconds, and then remove it. Soot and other particles from the air will have adhered to the tape, along with debris such as loose bark and moss from the tree. Take two samples of particles at 1 metre above the base of the tree.

Stick the samples onto the individual results sheet for the correct site.

Analysing results

The sticky tape on the slides can be examined under the microscope. Make mini-quadrats by photocopying graph paper onto acetates. Lay an acetate grid over the pollution sample (sticky tape). Use random co-ordinates to locate a quadrat. Estimate and record the percentage frequency of black particulates in the chosen quadrat.

Repeat this for different quadrats, and calculate an average percentage cover of particulates for the sample site. Only soot particles should be recorded; ignore bark and moss. A hand lens may be useful.
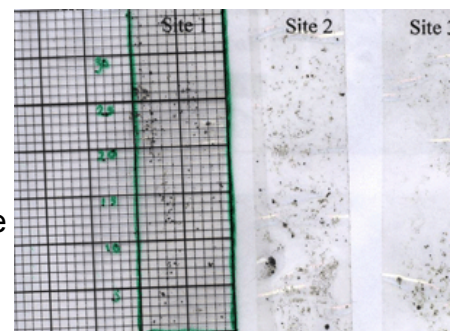
Health and safety

Always be very careful near to roads . Please make sure that someone goes with you if you are doing any field work outside.

⚠ Caution

Make your own fieldwork equipment (www.field-studies-council.org/outdoorscience/diy.htm)

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