NPL

Measurement At Home

Pollution monitor

#MeasurementAtHome
npl.co.uk/measurement-at-home

How clean is the air near you?

- this task measures dust and dirt and not greenhouse gases
- how much does air cleanliness change with location?
- how long does it take before you can detect dirt from the air?
- how much pollution can you see, and how much is invisible?

estimated time: can take up to a week before you see a result. ***no prior knowledge needed.***

Instructions

watch the video (https://youtu.be/eTYXgci5OwU)

1. Decide where you will place your pollution monitors. Find places where people won't touch them, but where you can reach them easily. Places could be inside and outside of a building, or near to and away from roads.
2. Make your monitors from either white/transparent plastic or thick white card. We used plastic lids from paper cups. If card, take care using scissors to cut 5 cm squares and add a hole if you plan to hang up using string. On each monitor write the location.
3. Smear some petroleum jelly (like Vaseline) using your finger, or a paint brush, on the labelled side of monitors.
4. Attach your monitors in location. Sellotape is probably not strong enough so use string or duct tape. Take care not to damage the surfaces you stick monitors to.
5. Check the monitors closely daily. In time you will start to see dark specks.
6. After 7-10 days carefully check all monitors for your report below or using the NPL webpage: npl.co.uk/measurement-at-home/pollution-monitor

Equipment required

- White plastic sheet/container or strong white card
- scissors and holepunch if using card
- pencil or pen to label card/plastic
- petroleum jelly (Vaseline)
- optional paintbrush
- String or duct tape to hang sensors.

Risks

- choose locations that are easy for you to access and will not get in the way of, or be disturbed by people
- take care if using scissors not to cut yourself.
- wash hands after touching petroleum jelly (so you don't get it on anything else)
- take care not to damage the surfaces you stick monitors to.

SI measurement units

- second (s) for time (day = 86400 seconds)
- candela (cd) for light intensity to see and describe colour of pollution
- metre (m) for describing size of particles.

Challenge topics

climate measurement, measurement science, science observation, pollution.

Thoughts, tips and information

NPL is involved in measuring many types of pollution including greenhouse gases your monitors cannot show.

How long did you run the experiment for (days)	
Name location 1 and any observations on monitor	
Name location 2 and any observations on monitor	
Name location 3 and any observations on monitor	
Name location 4 and any observations on monitor	

Adult direction or supervision is required. All experiments are carried out at your own risk.
For more experiments, visit NPL Measurement at Home.