

WHAT AFFECTS MY HOME AIR?

The aim of this activity is to explore the typical concentrations of fine particulate matter (PM_{2.5}) or volatile organic compounds (VOCs) found in a home environment. It also introduces using a time-activity diary, a tool frequently used by scientists, to try to identify activities in the space that coincide with spikes in PM_{2.5} or VOC concentrations.

You will need:

- Air quality monitor
- Connected device to view the data from the air quality monitor
- 1 copy of the diary sheet for each measurement day
- Pen or pencil

On the measurement day:

- Try to behave as normally as possible. Try to avoid breathing directly onto the monitor.
- Complete the diary sheet by ticking any activities taking place in each hour period and noting the number of people in the space.

Set up:

1. Choose which room you want to measure. You could pick a bedroom, living space or the kitchen. You could think about where you spend the most time to help to pick a room.
2. Pick a measurement day. You could either choose a typical day or a day that might be interesting, for example if you are planning to do a lot of cleaning or cooking a big meal. You could also choose to monitor for multiple days. If this is the case, you will need multiple copies of the diary sheet.
3. The night before the measurement day, set up the monitor in this room. You should try to position the monitor:
 - a. Away from any potential sources of pollutants or moisture, such as the stove, kettle or microwave, fireplaces, candles, incense or plug in air freshener.
 - b. Away from heat sources, such as radiators.
 - c. Between about 1m and 1.5m above the floor. This is to measure in the breathing zone, as air is not always well mixed in the space.
To make it relevant to the class you could place the monitor at a height representing the average height of the class.
 - d. Away from ventilation openings, windows, or vents, to be sure that the monitor is measuring indoor air not air coming in from outside.
4. Somewhere that won't affect the way people normally behave in the room.
5. Set out the diary sheet and fill in the general room details at the top of the sheet.

Questions to think about when reviewing the data:

Fine Particles (PM_{2.5})

1. What was the highest level of fine particles?
2. When did it occur?
3. Using the diary sheet, were there any activities just before or during this time that might explain the increase in particle levels?
4. Compare the particle concentrations with the diary. How many peaks in particle concentrations are linked to higher particle levels?
5. Did any activities in other rooms increase the particle levels in the monitored room?

Volatile compounds (VOCs)

1. What was the highest level of volatile compounds (VOCs)?
2. When did it occur?
3. Using the diary sheet, were there any activities just before or during this time that might explain the increase in volatile compounds (VOCs) levels?
4. Compare the particle concentrations with the diary. How many peaks in particle concentrations are linked to higher volatile compounds (VOCs) levels?
5. Did any activities in other rooms increase the volatile compounds (VOCs) levels in the monitored room?
6. Look at times where there were more people in the room. Did the number of people appear to have an effect on the pollutant levels?