

# Activities for Teachers & Parents

## MEASURING INDOOR AIR

In recent years, a few companies have started to release indoor air quality monitors designed to be used by members of the public to measure the air quality in their own homes. These monitors, often called consumer monitors, are sometimes used by scientists to measure air quality in buildings, as they are cheaper than the research grade monitors. The activities included in this pack are designed to use one of these consumer monitors to explore air quality in the home.

We developed these activities for **teachers** to run at home, or (some) at school, and share the results with their class at school. They would also be suitable for **parents** to run with their children but are **not** suitable for unsupervised children.

Equipment
Fine particles ( <b>PM<sub>2.5</sub></b> )
Volatile organic compounds ( <b>VOCs</b> )
Temperature ( <b>°C</b> )
Relative humidity ( <b>%RH</b> )

These activities were developed for a Foobot home, which has been evaluated by researchers<sup>1</sup>. However, they may also work with other commercial indoor air monitors. The foobot measures fine particles (PM<sub>2.5</sub>), total Volatile organic compounds (TVOC), temperature (°C) and relative humidity (%RH). There is an icon next to each activity to indicate which parameter is being measured. If you are using these activity sheets with another monitor, you can use these to cross check whether the activity is suitable.

### Activity types

Two types of activity relate to two of the typical methods frequently used by scientists.

The first activity type is monitoring activities. Monitoring is used by scientists to investigate the air quality found in buildings such as homes under normal conditions. Scientists sometimes also perform an intervention, where they change something about the building or how it is used and monitor the air quality before and after the change to see if it improves the air quality. In this pack, we want you to monitor the air quality and record activities in the room to investigate which activities make the air quality better or worse.

The second activity type is controlled tests to directly compare the effect of different activities on pollutant concentrations. Scientists might carry out these tests in a specially designed room so they can estimate the emission rate. We have suggested a simplified method suitable for the home environment.

<sup>1</sup> Moreno-Rangel, A., Sharpe, T., Musau, F., and McGill, G.: Field evaluation of a low-cost indoor air quality monitor to quantify exposure to pollutants in residential environments, *J. Sens. Sens. Syst.*, 7, 373–388, <https://doi.org/10.5194/jsss-7-373-2018>

**About this worksheet:** In the RCPCH RCP 2020 publication *The Inside Story: Health effects of indoor air quality on children and young people*, on page 15, #TeamCleanAir&Us said: "Children and young people want clear, factual and accessible information about what the potential harm is from poor indoor air quality and what we (children, young people, parents and carers) can do to avoid or reduce indoor air pollutants". Many of the Indoor Air Quality Working Party members were contributing authors to this publication and have produced these worksheets as a first step towards addressing this request from children and young people.