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## **Child and Adolescent Health Impacts of Learning Indoor environments under net zero: CHILI - School Environmental Monitoring Study**

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### **HEADTEACHER INFORMATION SHEET**

We would like to invite your school to take part in a scientific study of air quality in schools, led by the UK Health Security Agency (UKHSA). This will involve intensive monitoring of air, temperature, and noise in five classrooms for two weeks, one in summer and one in winter. This study is part of [CHILI](#), which is funded by UK Research and Innovation (UKRI) and the National Institute for Health and Care Research (NIHR). Before you decide whether or not to take part, please take the time to read the following information. If you decide not to take part, there will be no disadvantage to you or your school of any kind and we thank you for considering our request.

#### **Background to the study**

The indoor environment in schools plays an important role in supporting children's health and school attendance. As schools across the UK are being adapted to become more eco-friendly, CHILI aims to understand how these changes impact indoor air quality and heat, and consequently, children's health and learning.

This research will involve measuring indoor air pollution in 20 schools across England and Wales to compare with outdoor pollution data. This will help us to understand the relationship between building design, ventilation, indoor and outdoor air quality, temperature and noise conditions in schools, which will inform future building designs to create healthy, low-carbon schools, better supporting children's health and learning.

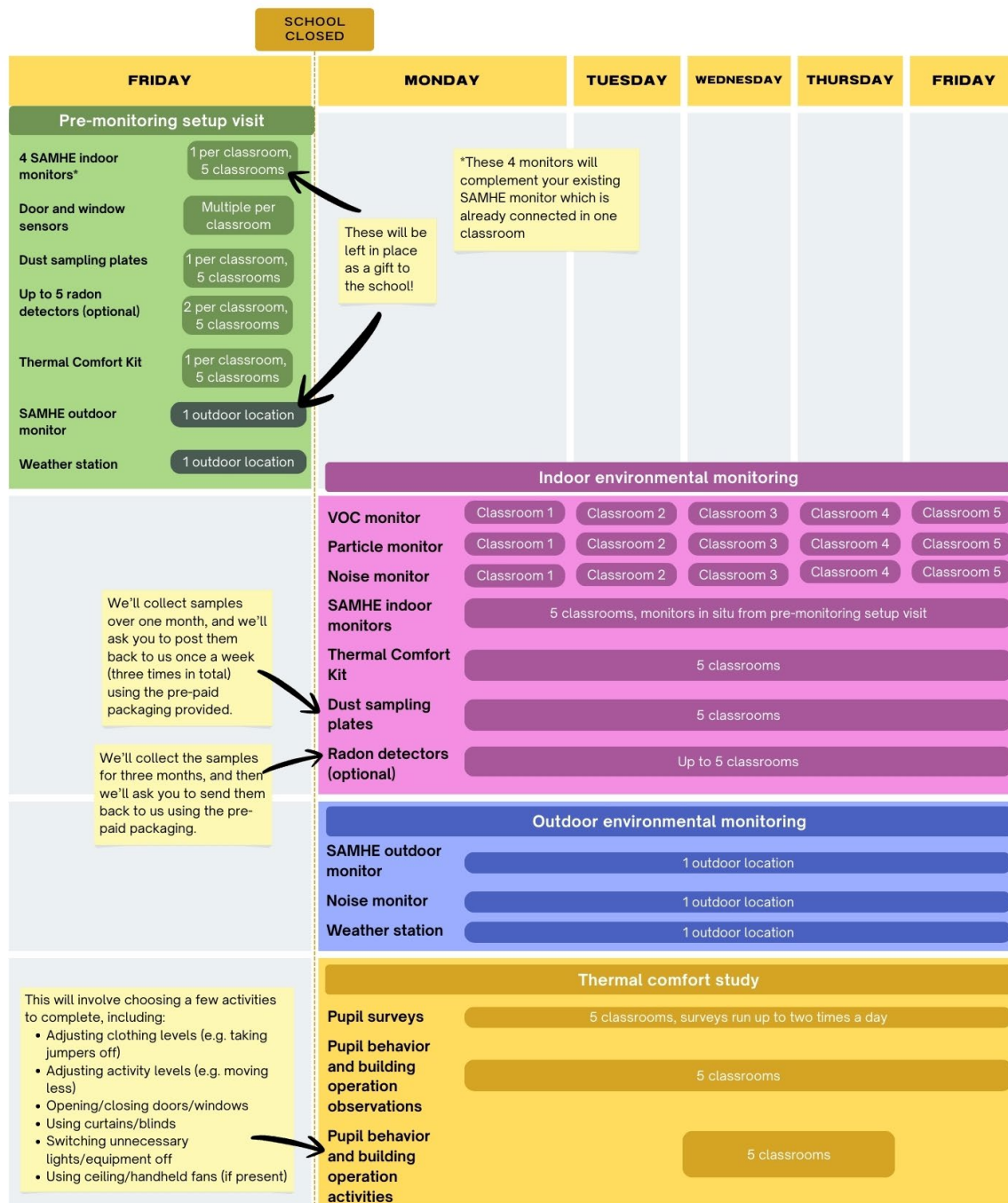
#### **What will happen if my school takes part?**

If your school agrees to take part, researchers from UKHSA will attend your school to carry out monitoring for one week during summer (April-August) and one week during winter (October-February). We will confirm dates with the school once participation has been agreed. Before these visits, your school will need to be registered with the [SAMHE](#) project and have a SAMHE indoor air quality monitor set up in one classroom.

For details of the equipment that we will use to monitor your school, please refer to this document: [CHILI EQUIPMENT LIST v1.4.docx](#)



Monitoring will be performed in 5 classrooms as well as outdoors, following the schedule outlined below:



Researchers will attend your school the Friday before monitoring commences to set up some of the equipment in the selected classrooms and outdoors, and check Wi-Fi access and power supply. Then, starting Monday, researchers will monitor the air, temperature,



and noise in 5 classrooms and outdoors for one week. Some of the equipment will need to be moved between classrooms each day to make sure that we have monitored each classroom for one day. Other equipment will remain in place for the whole week. We will leave small plastic dishes out of reach in each classroom to collect dust samples for 1 month after our visit. Equipment will be positioned to minimise interference and, where appropriate, protective enclosures will be used to prevent tampering while ensuring accurate air quality measurements.

During the monitoring week, students will be asked to fill out brief online surveys twice a day to understand how comfortable they are feeling in their classroom. Pupil participation will be voluntary, and we will provide information that can be shared with parents, if required by your school policy. The surveys will be completely anonymous.

Researchers will also be doing observations to understand how the classrooms are being used in relation to thermal comfort (whether doors/windows are open or closed, etc.). On Wednesday and Thursday, we will need you to identify at least 1 teacher from each of the 5 classrooms who can lead some short activities to test a range of activities aiming to improve indoor environment quality, including both occupant behavior and building operation. These activities may include things like adjusting clothing and activity levels, opening/closing doors and windows, and switching off unnecessary lights.

At the end of the week, researchers will remove all the equipment, except for the SAMHE monitors which will be left as a gift to the school. Taking samples of dust will take a bit longer. We'll need a member of school staff to post some of these sample dishes back to us **once a week** using the pre-paid envelope provided. **In total, this will involve posting items back three times** over the four-week period, with the final posting happening at the end of the study.

There will be **five sample dishes in total** in each classroom:

- **Four dishes** will be changed **once a week**.
  - a. The **first weekly dish** will be collected directly by a UKHSA researcher, so this one **won't need to be posted** by the school.
  - b. The **next three weekly dishes** should be placed in the pre-paid envelope and posted back to us by a member of school staff.
- **One dish** will stay in place for the **full four-week period** and should be posted back **together with the third weekly dish** at the end of the study.

Altogether, this provides **five samples per classroom**: four weekly samples and one sample collected over the full four weeks — with **three postal returns in total**.



### ***Radon monitoring***

You may also separately choose your school to participate in radon monitoring. This is entirely optional and will not affect participation in other study components. To help you make this decision, we will provide detailed [information](#) about what radon is, why it is important to our health, how we measure its occurrence in buildings, and what the implications are if radon is found. Please read this carefully as if radon is detected there may be cost implications for the school. If you choose to take part in radon monitoring, small samplers will be left in ground-floor classrooms for 3 months. We will need someone in your school to post these samples back to us after 3 months using pre-paid packaging.

### **Why has my school been invited to participate?**

Your school may have been selected based on your previous participation in the Schools Air quality Monitoring for Health and Education (SAMHE) project. If your school is not already a part of this network, we will ask that you register. This will allow teachers and pupils to access the air quality data, as well as a range of related activities and experiments, through an interactive Web App. More detail can be found here: [SAMHE](#).

### **Does my school have to take part?**

Participation in this research is entirely voluntary. If your school does decide to participate, you will be asked to sign a consent form on behalf of your school. If you consent to take part, we will provide information for you to pass on to teachers and pupils about the study.

You are free to withdraw consent from this study at any point without giving a reason and with no disadvantage to your school of any kind. However, please note that if you withdraw after the publication of project outputs, which will be made publicly available, it may not be possible to withdraw any data which is used therein. If your school has chosen to participate in the optional radon monitoring, you may choose to withdraw only from the radon monitoring component at any point while continuing with other study activities. Please note that your school will never be identified in any outputs.

Withdrawing from this study does not automatically withdraw you from the SAMHE project monitoring air quality in your school using the gifted SAMHE monitor, and if you wish to withdraw from that project then please contact [hello@samhe.org.uk](mailto:hello@samhe.org.uk).



## **What are the risks of participating in the study?**

There will be some disruption to selected classrooms during equipment installation and monitoring weeks. The instruments that we will use to monitor classrooms will take up some space (roughly 2 m<sup>2</sup>), and will require 5 power sockets, and will make some noise during operation (a quiet hum). All the equipment will be PAT tested and follow the relevant safety standards and will be installed in locations that do not pose safety hazards to children. For more information, please refer to [CHILI EQUIPMENT LIST v1.6.docx](#). We may be able to provide extension leads if needed.

As part of the study, we will ask pupils to fill out a short online survey about how hot or cold they are feeling up to two times a day- this should only take 10 minutes to complete. All surveys will be completely anonymous. All monitoring and survey activities will be scheduled to minimize disruption to teaching and learning as much as reasonably possible.

There is also a risk of finding poor quality air in your classrooms. A report will be provided on findings from your classrooms, with an opportunity to speak about them with researchers. If this study identifies any air quality issues in your school, support will be provided through this interaction with additional information available on the CHILI website.

Additionally, if radon monitoring identifies levels above the UK Action Level (300 Bq/m<sup>3</sup>), schools may need to consider remediation measures, which can involve costs of up to several thousand pounds. Further information on radon remediation options is available [here](#) from UKHSA.

This project has been approved by the UK Health Security Agency Research Ethics and Governance Group (REGG) (R&D 637).

## **What are the possible benefits of taking part?**

As a token of appreciation, your school will receive a £200 voucher as well as a £50 voucher for the caretaker. In addition, your school will receive air quality monitors (5x indoors, 1x outdoors) as a gift following participation, as well as access to the [SAMHE Web App](#). This is a great way to get teachers and pupils involved by being able to see their air quality data and additional exercises and experiments in a fun and informative format. Furthermore, your school's participation in this study will contribute to important research that will be used to inform future building policies to create healthier learning environments while making schools more eco-friendly.



### **Who else is involved in this study?**

The CHILI Hub includes researchers from University College London (UCL), Imperial College London, London School of Hygiene & Tropical Medicine, Swansea University, UK Health Security Agency (UKHSA), University of Leeds and the Stockholm Environment Institute at the University of York. Monitoring in schools is being led by researchers from UKHSA, but they may also be joined by researchers from one of the partner universities.

This work is supported by the UK Research and Innovation Building a Green Future strategic theme, National Institute for Health and Care Research (NIHR), Engineering and Physical Sciences Research Council (EPSRC), Medical Research Council (MRC) and Natural Environment Research Council (NERC). The funder reference number for this study is MR/Z50645X/1.

### **Will the information obtained from this study be kept confidential?**

Yes. All information collected during the study will be kept private and handled securely. We will collect names and contact details of the Headteacher/senior leader and caretaker only to contact them about the study; these will not appear in any reports or publications. No names or other identifying information will be collected during pupil surveys. Environmental monitoring data from your school will be only accessible to the research team and researchers from CHILI and stored securely on UKHSA and university password-protected servers in line with security standards. Your school will not be identified in any research outputs- data will be anonymised. We will take photos of the equipment in classrooms to share with future schools for information. However, no photos of pupils or staff will be taken. All data will be retained for 10 years after collection in line with research governance standards, after which it will be destroyed or fully anonymized for archival purposes.

### **What happens to the results of the research study?**

The results of this study will be published in recognised journals and presented at scientific conferences and policy forums. All schools involved will receive a report on the outcome of the study with recommendations for future interventions. Furthermore, access to the data from gifted air quality monitors will be accessible via the SAMHE Web App following setup and registration.

### **THANK YOU**

If you agree to take part, would like more information, or have any questions or concerns about the study please contact:



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Email: [Rohit.chakraborty@ukhsa.gov.uk](mailto:Rohit.chakraborty@ukhsa.gov.uk)

If you have any concerns about the conduct of this study, you may contact Karen Exley, Air Quality and Public Health Programme Lead at UKHSA ([Karen.Exley@ukhsa.gov.uk](mailto:Karen.Exley@ukhsa.gov.uk)), or Elizabeth Coates, Head of UKHSA Research Ethics and Governance Group ([elizabeth.coates@ukhsa.gov.uk](mailto:elizabeth.coates@ukhsa.gov.uk)).

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