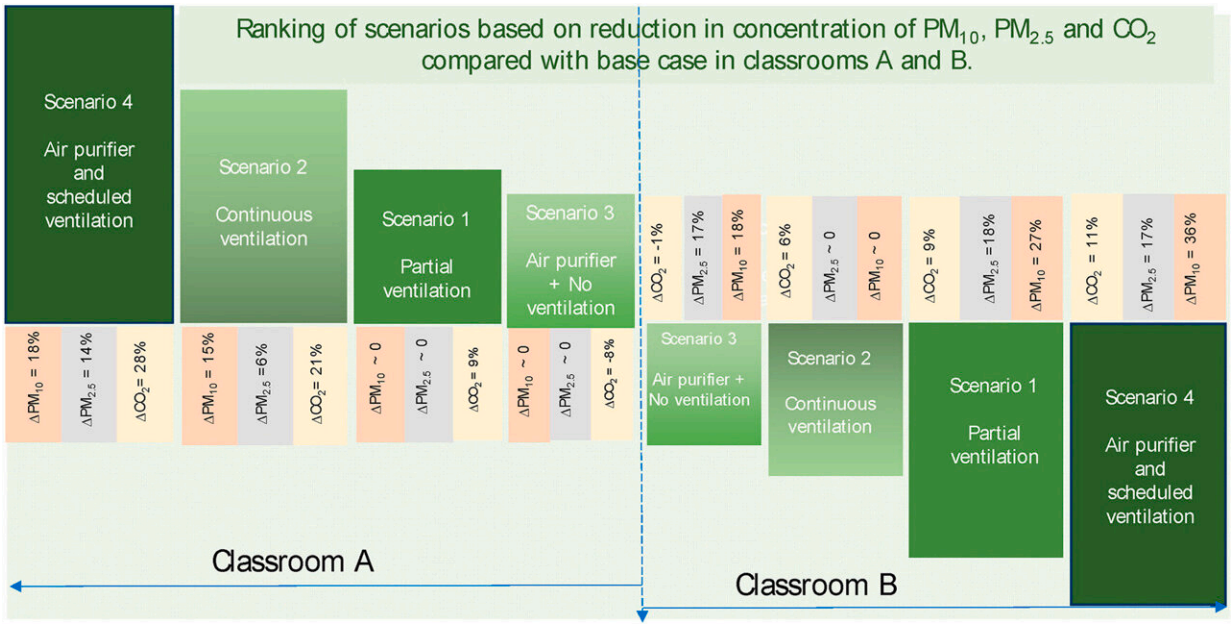
Air filters and scheduled window opening can reduce classroom pollution by up to 36%: Study

March 12 2024



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To improve air quality in classrooms, schools should use air purifiers during the school day and open windows after hours. That's according to a new study from the University of Surrey.

In England, 7,800 schools are in locations where air pollution breaches

WHO limits. Last month, the Mayor of London, Sadiq Khan, announced that air purifiers would be installed in 200 of them.

Nidhi Rawat, a researcher at Surrey's Global Centre for Clean Air Research (GCARE), said, "Alternating purifiers with scheduled window openings is an effective way to clean up classroom air."

"The most effective combination depends on the characteristics and location of the classroom and when the teacher opens windows."

"We also understand that keeping the windows open is not always comfortable or practical—so a sensible, tailored approach is recommended."

Scientists monitored pollution in two classrooms at an infant school in Guildford, UK. It is 10 meters from the A3 road, passed by 31,000 cars each day.

They studied two classrooms: one facing the road and occupied by 4 to 5-year-olds, and one on the other side of the building, occupied by 6 to 7-year-olds.

In both classrooms, the best improvements in air quality happened when air purifiers were alternated with scheduled window openings. Coarse particle pollution fell by 18% in the classroom nearest the road and 36% in the other classroom. Carbon dioxide fell 28% in the classroom nearest the road and 11% in the other classroom.

Smaller improvements were detected when windows were opened without air purifiers.

Professor Prashant Kumar, director of GCARE, said, "Our timely study can help policymakers choose when and how to optimize the benefits of

air purifiers and window openings in the classroom."

"Globally, millions of children are forced to breathe poor quality air while they learn. We hope our study can be used to design ways to make classrooms safer and pupils healthier."

The paper is published in the *Journal of Building Engineering*.

More information: Nidhi Rawat et al, Assessing the impact of air purifier and scheduled natural ventilation on pollution-ventilation nexus in a near highway infant school, *Journal of Building Engineering* (2024). DOI: 10.1016/j.jobe.2024.108813

Provided by University of Surrey