Centers for Disease Control and Prevention

COVID-19

Interactive School Ventilation Tool

Updated May 27, 2022

Small particles that people breathe out can contain virus particles, including the virus that causes COVID-19. If a teacher or student in your classroom has been infected with the virus, improving ventilation (air flow) can help prevent virus particles from accumulating in the air. Good ventilation, along with other preventive actions, can help prevent you from getting and spreading COVID-19.

How can I decrease the level of particles during the school day?

Select the options below to see how particle levels change as you adjust ventilation settings.

(To see the effects of these ventilation settings on different room sizes and HVAC system types, see this report from the National Institute of Standards and Technology.)

HVAC System Type

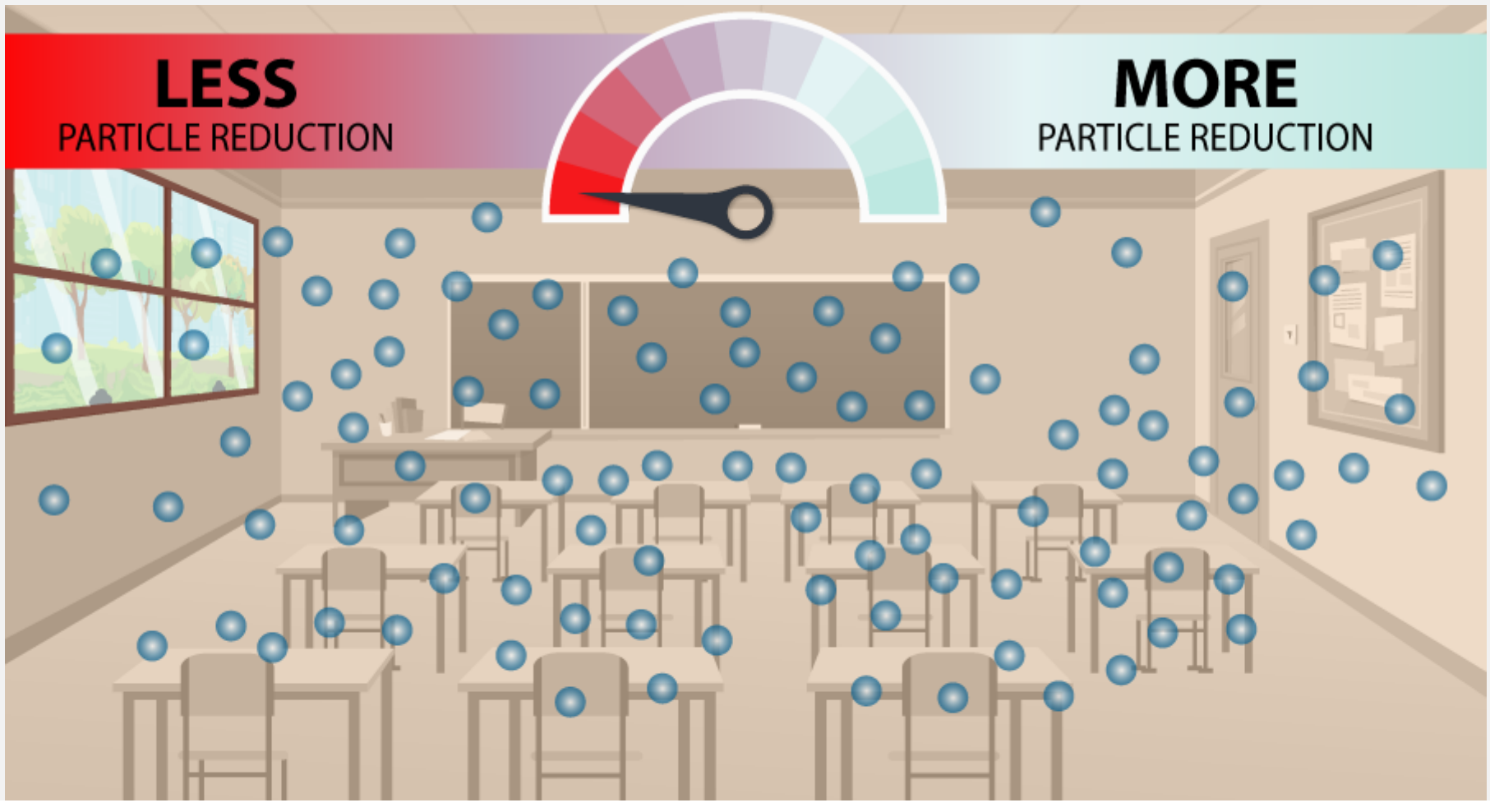
None

Enhancement

No enhancements

Result

0% particle reduction achieved in classroom by using ventilation.



The risk of getting COVID-19 varies according to individual susceptibility and the number of virus particles to which a person is exposed. The ***fewer*** virus particles in the air, the better.

Model assumptions

The model assumes that if you select Terminal Unit or Central/Rooftop Unit, the unit would be operating continuously during school hours. This tool uses data from the National Institute of Standards and Technology. The results are estimates and might not be exact in the real world. Our model assumes an infected occupant (teacher or student) inside a 790 square-foot classroom for 6 hours. The second panel shows the reduction in particles over the 6 hours in the classroom.

The base filter in the “No HVAC” system is no filter, in the “Terminal Unit system” is MERV 6, and in the “Central/Rooftop Unit” is MERV 8. The portable HEPA air cleaner is assumed to be operating at high speed (300 cfm). The exhaust fan is assumed to be 1,200 cfm. The 100% Outside Air option is only available on the “Central/Rooftop Unit” and means that no air is recirculated. All scenarios are compared against a classroom with no central ventilation system with no filter, no HEPA air cleaner, and no exhaust fan. For this model, a “premium” filter is based on one rated for MERV 13 filtration. Note that NIST reported reduction in exposure but reduction in particle levels is reported here. Learn more about HVAC filters and portable air cleaners. Visit Ventilation in Buildings to learn more about MERV ratings.

Download Data [CSV – 523 B]

Last Updated May 27, 2022

const { default: imageminSvgo } = require("imagemin-svgo");