



Improving Indoor Air Quality in Schools

November 2023 Teacher Edition 2.0

Dear Teacher,

I am reaching out to you today about the importance of improving air quality in schools and how it can help you. [Ontario School Safety](#) is working very hard to improve Indoor Air Quality (IAQ) in Ontario schools, childcare centres and on school buses to help keep students and teachers healthy. We are already seeing a lot of illnesses going around the classroom and community which is keeping students and great teachers like you at home instead of in the classroom and we want to give you some strategies that will help make things better.

A growing body of research is showing that **many respiratory viruses and bacteria can linger in the air, like smoke, for hours and be transmitted from person to person**. These viruses and bacteria can collect and concentrate in indoor spaces with poor ventilation.

A recent study of over 850,000 US households found that **70% of household spread of COVID-19 started with a child**. And with the wildfire smoke events across Ontario earlier this year, it has never been more important to ensure that our schools have good ventilation and air filtration. Why? **Because exposure to wildfire smoke can also make us more vulnerable to respiratory illnesses – especially kids**.

Many of our schools lack adequate ventilation but luckily there are still ways for teachers to make a difference in improving the air quality in the classroom. In addition to the suggestions on the next page, we have attached the infographic [Clean Air in classrooms using W.A.T.C.H.](#) by Joey Fox, P.Eng. & Chair of the IAQ Advisory Group at [OSPE](#). This contains further information on making classroom air healthier for education workers and students.

What is Indoor Air Quality?

Indoor Air Quality (IAQ) refers to the quality of the air inside and around a building. Improving IAQ means ensuring adequate ventilation and filtration, as well as ensuring appropriate temperature and humidity levels within a space.

Research also shows that there are other benefits to improving IAQ in schools, such as:

- Improved academic performance
- Better focus and attention
- Reduced drowsiness and fatigue
- Reduced allergy and asthma symptoms
- Fewer student and education worker absences

Improving indoor air quality in schools means better working and learning conditions for everyone!

For more information, visit www.ontarioschoolsafety.com.



You and your students *deserve* the cleanest air possible

Here are simple things you can do in your classroom to help improve IAQ to help everyone stay healthier this year:

- **Open windows and doors as much as possible:** Even opening a window a little will make a difference by bringing in fresh air and letting out unhealthy air. In fact, in a recent study, it was shown that partly opening two windows can result in a 2.7 to 3-fold decrease in the total concentration of virus particles in a room. Opening doors can also help to move air out of the classroom.
- **If you have a fan, turn it on:** Fans help to promote air circulation and prevent infectious particles from accumulating in one area. Just be sure to place the fan where it isn't blowing air directly from one person to another. Positioning a fan near a window can also help to draw fresh air from outside.
- **Use HEPA air purifiers properly:** HEPA air purifiers remove both infectious particles and other airborne pollutants like wildfire smoke from the air. Research shows that using HEPA units helps to reduce absences and illnesses. If you have access to a HEPA unit, run it on the highest setting possible. If you have access to more than one HEPA air purifier, spacing them out around the room and running them at a lower setting is also beneficial. HEPA units take in air from all sides, so they must be placed away from walls, corners, and furniture in order to work properly.
- **Invest in a CO₂ monitor:** Keeping track of the carbon dioxide (CO₂) levels in your classroom will help give you an idea of how much exhaled air is trapped inside the classroom. Carbon dioxide levels above 1000 PPM (parts per million) can be a sign that the ventilation may need to be checked, that the HEPA air purifier(s) should be turned on, and that a window should be opened to help bring in fresh air if possible. (Note: HEPA units will not reduce CO₂ levels but they do clean the air of pollutants like viruses and smoke.)
- **Wear a well-fitted N95 mask (or equivalent):** N95 respirators use electrically charged fibres and many layers to attract and trap microscopic particles — so you don't breathe them in.

Thank you for your dedication and your hard work in helping students learn and grow at school.

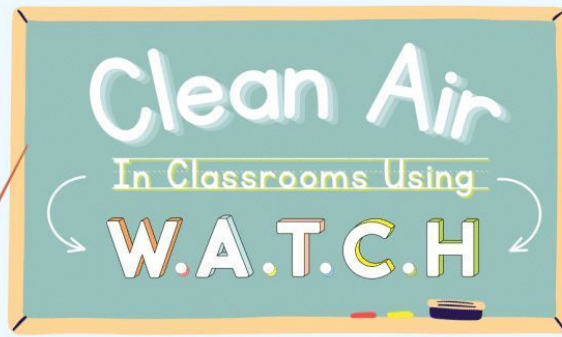
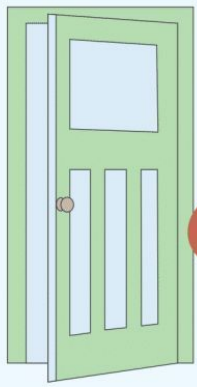
Signed,
Your student's family & Ontario School Safety

References

Wang, C. C., Prather, K. A., Sznitman, J., Jimenez, J. L., Lakdawala, S. S., Tufekci, Z., & Marr, L. C. (2021). Airborne transmission of respiratory viruses. *Science*, 373(6558), eabd9149.

Tseng, Y. J., Olson, K. L., Bloch, D., & Mandl, K. D. (2023). Smart Thermometer–Based Participatory Surveillance to Discern the Role of Children in Household Viral Transmission During the COVID-19 Pandemic. *JAMA Network Open*, 6(6), e2316190–e2316190.

Landguth EL, Holden ZA, Graham J, Stark B, Mokhtari EB, Kaleczyc E, et al. The delayed effect of wildfire season particulate matter on subsequent influenza season in a mountain west region of the USA. *Environment International* [Internet]. 2020 Jun 1 [cited 2023 Jul 20];139:105668. Available from: <https://www.sciencedirect.com/science/article/pii/S0160412019326935>



W

indows

- Open windows as much as possible.
- If it's cold outside, even cracking windows slightly can help.
- Keeping the classroom door open helps circulate the air even more.
- Warm weather? Having 2 windows open while using a fan to blow air out of 1 of the windows is optimal.

A

ir Movement

Check to see if you feel air coming from the diffusers or air vents.



Attach a ribbon to the vent for an easy visual cue that it's working!

T

hermostat

Keep the **FAN** setting **ON** when the room is being **occupied**.



AUTO is **ok** to use when the room is going to be **unoccupied**.

C

O2 Levels



Use a CO2 monitor with a nondispersive infrared (NDIR) sensor

| | |
|-----------------|------------|
| < 600 ppm | Very Good |
| 600 - 800 ppm | Good |
| 800 - 1000 ppm | Acceptable |
| 1000 - 1500 ppm | Poor |
| > 1500 PPM | Very Poor |

* HEPA filters do not change CO2 levels.

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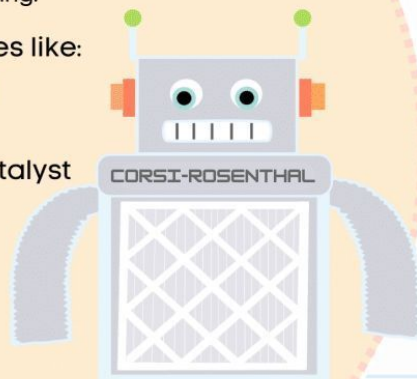
EPA Filter or Corsi-Rosenthal Box

Use the highest setting.

* Noise permitting.

Disable Features like:

- Ionization
- Plasma
- UV with Catalyst
- Auto



PLACEMENT IS IMPORTANT

- Move away from walls & corners. (0.5 m - 1.5 ft)
- Place as close as you can to the centre of the room.
- Avoid blowing directly at anyone.
- Face away from walls & obstructions, e.g. blowing under a table.
- Raised is better than on the floor.
- Keep away from clean air sources: open windows, air vents & other HEPA filters.
- If you have multiple HEPA filters, space them out evenly.