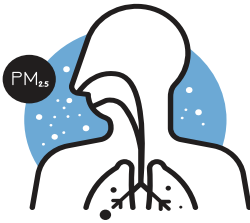


Particulate Matter (PM) in Schools

Reducing PM supports clean air, good health, and learning

What Is Particulate Matter?

- Small particles that are in air. They can be common allergens like dust, pollen, mold, animal dander, and smoke.
- PM is measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).
- Fine particles, measured as PM 2.5, are tiny particles or droplets that are 2.5 microns or smaller. PM 2.5 particles are about 30 times smaller than a human hair.



Effects of Particulate Matter

- PM 2.5 can travel deep into the respiratory tract, reaching the lungs.
- Immediate health effects include eye, nose, throat and lung irritation, coughing, sneezing, runny nose, and shortness of breath.
- People with heart and breathing problems, pregnant people, children, and older adults may be more sensitive to particle pollution.

Sources of Particulate Matter

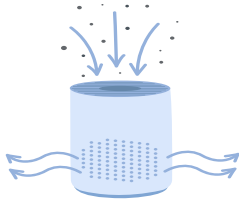
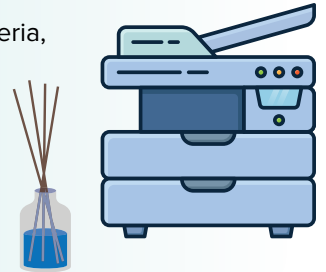
Outdoors

- Idling cars and diesel buses
- Road dust
- Gas-powered tools
- Construction activities
- Wildfire smoke
- Cigarette and vape smoke



Indoors

- Dust, plants, pollen, mold, pest allergens, bacteria, and viruses
- Outdoor sources that make their way indoors
- Fumes from copiers and printers
- Air fresheners, candles, and wax melts
- Cooking and cleaning activities
- Unvented appliances like stoves and furnaces



Recommended Indoor Ranges (using an Air Quality Sensor):

- **Excellent:** Less than $15 \mu\text{g}/\text{m}^3$
- **Good:** Between 15 and $35 \mu\text{g}/\text{m}^3$
- **Needs Improvement:** Greater than $35 \mu\text{g}/\text{m}^3$

How to Improve PM Levels in Indoor Air

- Improving PM_{2.5} levels reduces allergens, asthma, absenteeism, respiratory illnesses, and supports overall health.
- Install the highest Minimum Efficiency Reporting Values (MERV) filter that the HVAC system can support. MERV 13 or higher filters in HVAC systems reduce particulates and infectious airborne bacteria, viruses, and fungi.
- If current HVAC systems are unable to use MERV 13 filters, consider a portable HEPA air cleaner:
 - Air cleaners with HEPA filters remove particles like smoke, dust, and pollen from indoor air.
 - Make sure the portable air cleaners do not produce ozone or ions.
 - Select a portable air cleaner that is verified by the Association of Home Appliance Manufacturers (AHAM).
 - AHAM's standard measurement of an air cleaner's efficacy is called Clean Air Delivery Rate (CADR).
 - The CADR should be equal to at least $\frac{2}{3}$ of the room's area. For example: $300 \text{ sq ft} \times \frac{2}{3} = 200 \text{ Cubic Feet per Minute (CFM) minimum}$.

New York State School Environmental Health Program

health.ny.gov/SchoolEnviroHealth

