Washington Air Quality Guide for School & Child Care Activities

Vehicle exhaust, woodstove emissions, industrial emissions, wildfire smoke, windblown dust, and other sources contain fine particle pollution (PM2.5) that can seriously affect children's health. The following public health recommendations to protect children from PM2.5 are designed for school activities and can be applied to child care, before/after school programs, camp, and sports programs for children (18 years and younger) by considering the duration of outdoor activities.

	Outside Air Quality Index: PM2.5 Check current and forecast air quality at enviwa.ecology.wa.gov				
	Good (0-50)	**Moderate** (51-100)	**Unhealthy for Sensitive Groups** (101-150)	**Unhealthy** (151-200)	**Very Unhealthy/ Hazardous** (>200)
Recess (15 minutes)	No restrictions.	Allow children with health conditions (see below*) to stay indoors.	Keep children with health conditions indoors. Keep activity levels light for these children unless indoor PM2.5 levels are below 35.5 µg/m^3 (see following page).	Keep all children indoors. Keep activity levels light unless indoor PM2.5 levels are below 35.5 µg/m^3.	Keep all children indoors. Keep activity levels light unless indoor air is filtered, and indoor PM2.5 levels are below 35.5 µg/m^3.
P.E. (1 hour)	No restrictions.	Allow children with health conditions to stay indoors and monitor symptoms for those who participate. Increase rest periods for these children as needed.	Keep children with health conditions indoors. Keep activities light for these children unless indoor PM2.5 levels are below 35.5 µg/m^3. For others, limit to light outdoor activities. Allow any children to stay indoors if they do not want to go	Keep all children indoors. Keep activity levels light unless indoor PM2.5 levels are below 35.5 µg/m^3.	Keep all children indoors. Keep activity levels light unless indoor air is filtered, and indoor PM2.5 levels are below 35.5 µg/m^3.
Athletic Events and Practices (Vigorous activity 2-3 hours)	No restrictions.	Allow children with health conditions to opt out and monitor symptoms for those who join. Increase rest periods for these children.	Cancel children's outdoor athletic events and practices or move them to an area with safer air quality, either indoors or to a different location.	Cancel children's outdoor athletic events and practices or move them to an area with safer air quality, either indoors or to a different location. Consider time spent in poor air quality during transit before relocating.	Cancel children's outdoor athletic events and practices or move them to an area with safer air quality, either indoors with filtered air or to a different location. Consider time spent in poor air quality during transit before relocating.

Health conditions include asthma and other lung disease, respiratory infection, heart disease, and diabetes. See the following page for more details about children's health, improving indoor air quality, and steps to reduce exposure.

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Washington State Department of Health

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Health	Children are more sensitive to health effects from breathing in PM2.5 because their lungs are still developing, and they breathe in more air than adults for their body weight. Children with health conditions, such as asthma, have an even higher risk of health effects, including asthma attacks. Adult staff and volunteers may also be sensitive to air pollution, see WA Air Quality Guide for Particle Pollution. Symptoms from PM2.5 exposure range from minor to severe and include burning eyes, coughing, throat and nose irritation, fatigue, headache, wheezing, and shortness of breath. For children with asthma, follow their Asthma Action Plans. If symptoms become serious, seek medical attention.
Reducing Exposures	As PM2.5 pollution increases, each step is increasingly important to protect health: limit duration and intensity of outside physical activity and stay indoors and keep indoor air clean. Consider a child's total exposures throughout the day such as during transportation and longer duration activities like overnight camp. When it is not possible to stay indoors with cleaner air, consider N95 or other particulate respirators as a last option for limited use outside. Effective use requires proper selection, size and fit. See Western States PEHSU guidance on respirator use by children.
Physical Activity	CDC recommends children exercise 60 minutes or more every day. Doing so safely when PM2.5 levels are high, especially for days or weeks, requires precautions, such as limiting activity levels. People breathe deeper and take more air into their lungs when exercising. • **Light Activities**: Playing board games, playing catch, and stacking blocks • **Moderate Activities**: Yoga, shooting basketballs, dance instruction, and table tennis • **Vigorous Activities**: Running, jogging, basketball, football, soccer, swimming, and jumping rope
Improving Indoor Air Quality	Outside PM2.5 gets indoors through windows, doors, small openings, and some ventilation systems. Buildings with well-maintained and enhanced filtration (i.e. MERV 13) in the ventilation system have improved indoor air quality. Supplementing with properly sized, CARB-Certified HEPA portable air cleaners or DIY box fan filters can reduce PM2.5 in single rooms. Extreme heat can overlap with wildfire season. Establish building cooling resources in advance to help avoid opening windows when wildfire smoke increases PM2.5 levels. If you're not sure whether indoor PM2.5 levels are lower than outside, assume levels are similar and increase steps to reduce exposure, including filtration methods. See Improving IAQ and Ventilation in Schools During Wildfire Smoke Events and ASHRAE Protecting Building Occupants from Smoke.
Indoor Air Monitoring	Outdoor PM2.5 levels from the nearest agency monitor are updated hourly and daily forecasts are often available. Low-cost sensors can be used to take PM2.5 measurements indoors to check indoor air quality and outside when there is not a nearby agency monitor. However, they are generally less accurate than agency monitors. Correction factors can sometimes be used to increase accuracy. If using a correction factor is not possible, do not directly compare uncorrected sensor data to AQI cut-points or action levels. Compare indoor sensor measurements to outdoor sensor measurements (ensure that either both are uncorrected or they have the same correction factor). Then apply this comparison to the nearest agency monitor. For example, if the indoor sensor measurements are half of the outdoor sensor measurements, assume that the indoor $PM_{2.5}$ concentrations are half of what the agency monitor is reporting. Assess variation across the building(s) using a portable sensor when outside PM2.5 levels have reached "Unhealthy for Sensitive Groups". Include measurements in rooms used by children that are expected to have worse ventilation or indoor air quality (like no air filtration), rooms where physical activity is usually more vigorous (like the gym), rooms where external doors are opened frequently, and any external buildings (like portables). Repeat the portable sensor measurements in different conditions, such as changes in occupancy. A stationary indoor sensor can be used to track changes in indoor air quality over longer time periods. Prioritize steps to reduce exposure in the rooms with highest PM2.5 levels. See "Indoor PM2.5 Measurements in Schools", Wildfire Smoke Guidance for Canceling Events or Activities and Closing Schools, for more information. For technical assistance with indoor measurements, contact: airquality@doh.wa.gov.
School Closures	School and facility closures may be the best option if you cannot maintain indoor PM2.5 at lower levels after considering alternatives, such as improving indoor air filtration and relocating children. School closures are the decision of the school district, usually in consultation with the local health department. See Summary Wildfire Smoke Guidance for Closing Schools.
More Resources	Air Quality Flag Program, Air Quality and Health, Smoke from Fires and Health, WA L&I's Worker Health and Smoke