

Minnesota Air Quality Guidance for Schools & Child Care Facilities on Poor Air Quality Days for Ozone & Fine Particles

ACTIVITY	Air Quality Index (AQI)				
	0 to 50 GOOD	51 to 100 MODERATE	101 to 150 UNHEALTHY FOR SENSITIVE GROUPS (children & people with respiratory or cardiovascular diseases*)	151 to 200 UNHEALTHY	201 to 300 VERY UNHEALTHY
Recess or Other Outdoor Activities (15 to 30 minutes)	No Limitations	No Limitations	Sensitive groups should limit prolonged or heavy outdoor exertion.** Increase rest periods and substitute players to lower breathing rates.	Everyone should limit prolonged or heavy outdoor exertion.** Increase rest periods & substitute players.	Restrict outdoor activities to light or moderate exercise.
Physical Education Class or Outdoor Activities (30 to 60 minutes)	No Limitations	No Limitations	Sensitive groups should limit prolonged or heavy outdoor exertion.** Increase rest periods and substitute players to lower breathing rates.	Everyone should limit prolonged or heavy outdoor exertion.** Increase rest periods & substitute players.	Restrict outdoor activities to light or moderate exercise not to exceed one hour.
Scheduled Sporting Events or Outdoor Activities	No Limitations	Unusually sensitive individuals should consider reducing prolonged or heavy outdoor exertion.** Individuals with asthma or other respiratory/ cardiovascular illness (or their caregivers) should be medically managing their condition.	Sensitive groups should limit prolonged or heavy outdoor exertion.** Increase rest periods and substitute players to lower breathing rates.	Everyone should limit prolonged or heavy outdoor exertion.** Consideration should be given to rescheduling or relocating event/activity. Increase rest periods or substitute players.	Event should be rescheduled or relocated.
Athletic Practice and Training (2 to 4 hours)	No Limitations	Unusually sensitive individuals should consider reducing prolonged or heavy outdoor exertion.** Individuals with asthma or other respiratory/ cardiovascular conditions (or their caregivers) should be medically managing their condition.	Sensitive groups should limit prolonged or heavy outdoor exertion.** Increase rest periods and substitute players to lower breathing rates.	Limit prolonged or heavy outdoor exertion.** Consideration should be given to rescheduling or relocating practice or training. Increase rest periods or substitute players.	Sustained rigorous exercise for more than one hour must be rescheduled, moved indoors or discontinued.

*Individuals with asthma or other respiratory or cardiovascular conditions (or their caregivers) should be medically managing their conditions.

**Prolonged exertion means any outdoor activity that you will be doing intermittently for several hours and that makes you breathe slightly harder than normal. Heavy exertion means intense outdoor activities that cause you to breathe hard. For more information, visit the US Environmental Protection Agency air quality web sites www.airnow.gov and http://www.epa.gov/airnow/aqi_brochure_08-09.pdf.

HOW TO USE THIS TABLE

Use of this table by schools and child care facilities is voluntary. Information about daily air quality conditions in Minnesota may be viewed on the Minnesota Pollution Control Agency (MPCA) web site at <http://aqi.pca.state.mn.us/>. This information is reported via the Air Quality Index (AQI). Note: Forecasted air quality conditions are also available for the Twin Cities and Rochester.

Here's an example of how this table might be used to determine changes to be made for a Friday afternoon Physical Education program. Because forecasted information is only available for the Twin Cities and Rochester, this example only applies to these locations.

- **Step 1:** On Thursday afternoon, check Friday's forecast <http://aqi.pca.state.mn.us/>. While you're there, sign up for EnviroFlash, to be notified by e-mail about the latest changes in air quality. You can also call the AQI Hotline for hourly updated information about air quality for the Twin Cities and Rochester areas at 651-297-1630 (metro) or 1-800-657-3694.
 - **Step 2: If the forecast for Friday is Unhealthy for Sensitive Groups, follow the guidance in the table (e.g., sensitive groups should limit prolonged/heavy exertion);** make arrangements to have indoor space available for individuals with asthma and other respiratory diseases or cardiovascular diseases.
 - **Step 3:** On Friday prior to class, check the current AQI. Since fine particles can vary from one area to another, click on the map for a representation of fine particle levels in your area. If the AQI in your area has moved to Moderate, sensitive individuals may need to modify their activities. However, if the AQI has moved to Unhealthy, note that everyone is advised limit prolonged/heavy physical exertion.
- Please note:** Before cancelling a scheduled outdoor athletic event in the Twin Cities or Rochester, call the AQI Hotline for up-to-date information.

Fine Particles: In Minnesota fine particles (2.5 microns and smaller) levels in outdoor air generally are highest during the fall and winter months. Children and adults who are exposed to fine particles may experience respiratory symptoms such as asthma symptoms and difficulty breathing. Small particles may enter deep parts of the lung and cross into the bloodstream and circulate in the body. Exposures to fine particles also are associated with increased risks of cardiovascular disease, such as heart attacks, in adults. For more information about the health effects from fine particles, see the Minnesota Department of Health (MDH) web site: <http://www.health.state.mn.us/divs/eh/air/pm.htm>

Ozone: Ozone (O₃) is an invisible pollutant and a strong irritant that can cause constriction of the airways, forcing the respiratory system to work harder in order to

provide oxygen. It can also cause other health problems such as aggravating asthma and other respiratory conditions, damage to the deep portions of the lungs, wheezing, dry throat, headache, nausea, increased fatigue, weakened athletic performance and more. Long-term exposure to polluted air may have permanent health effects including decreased lung function, possible development of diseases such as asthma and bronchitis, or a shortened life span. Ozone usually reaches its highest level during the afternoon and early evening hours, and the highest concentrations are often downwind of the urban area. Indoor levels of ozone are usually less than outdoor air. For more information about the health effects from ozone, see the MDH web site <http://www.health.state.mn.us/divs/eh/air/ozone.htm>

TO RECEIVE NOTIFICATION OF AIR POLLUTION ALERT

When ozone or fine particle levels reach, or are predicted to reach, harmful levels for sensitive groups (AQI of 101 or greater), the MPCA issues an air pollution health alert. To receive notification, sign up via EnviroFlash at: <http://mn.enviroflash.info/>

PHYSICAL ACTIVITY AND PROPER MEDICAL MANAGEMENT

The health benefits of regular physical activity are well documented. The intent of this table is to help children and adults continue to exercise while protecting their health when air quality is poor. Participation in regular physical activity promotes normal growth and development, and helps to reduce the risk of developing obesity and chronic diseases (e.g., diabetes). For more information about the importance of physical activity, see the Centers for Disease Control and Prevention: <http://www.cdc.gov/physicalactivity/>. On most days of the year, Minnesota has good to moderate air quality and there is no reason to limit physical activities. Fine particle concentrations indoors will vary depending on several site-specific school factors, such as cooking and cleaning practices, indoor sources and ventilation, and therefore, no information is available to make general recommendations about whether going indoors or outdoors will reduce exposures. During ozone air pollution health alerts, routine physical activities may be continued indoors because indoor ozone levels are considerably lower than outdoors.

Asthma is one of the most common chronic diseases in the United States, characterized by inflammation and narrowing of the airways. The impact of asthma on children includes missed school days, interrupted sleep and limited physical activity. Approximately 7% of Minnesota children currently have asthma (about 85,000 children). While it cannot be cured, it can be controlled through adequate access to medical care, medications and self-management. Visit these MDH web sites for information: www.health.state.mn.us/asthma *Managing Asthma in Minnesota Schools* manual and resource page <http://www.health.state.mn.us/asthma/schoolmanual.html>
The Coach's Asthma Clipboard Program <http://www.health.state.mn.us/asthma/coachclipboard.htm>

This guidance was developed by the Minnesota Department of Health and the Minnesota Pollution Control Agency. The table was adapted from the Sacramento Metropolitan Air Quality Management District air quality guidelines for schools. May 2010

