



Air Quality 101: How to Protect Students’ Health from Outdoor Air Pollution

What is the Air Quality Index (AQI)?

Ever hear your local weather forecast say that tomorrow will be a “code orange” day for air pollution? That’s the Air Quality Index at work. The Air Quality Index, or AQI, is the system used to warn the public when air pollution is dangerous. The AQI tracks ground-level ozone pollution (smog) and particle pollution (soot), as well as four other widespread air pollutants. Newspapers, radio, television, and websites report AQI levels year-round. Keeping track of the current air quality information can help you take steps to protect yourself, children and others from unhealthy levels of air pollution.

AIR QUALITY INDEX LEVELS OF HEALTH CONCERN	NUMERICAL VALUE	MEANING
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, people who are unusually sensitive to air pollution may be at risk.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects. Limit prolonged or heavy activities outdoors.
Very Unhealthy	201 to 300	Health alert: Avoid prolonged or heavy activities outdoors. Everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. Everyone should stay inside and take all precautions.

Sensitive groups include people with lung disease or heart disease, children, older adults and people who are active outdoors.

The AQI runs from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health concern. AQI values at or below 100 are generally thought of as safe. When AQI values are above 100, air quality is unhealthy: at first for certain sensitive groups of people, including children, then for everyone as AQI values get higher.

The AQI is divided into six categories. Each category corresponds to a different level of health concern. Each category also has a specific color. The color makes it easy for people to quickly determine whether air quality is reaching unhealthy levels in their communities. For example, on a day where the AQI is in the “red” category, the air is unhealthy for everyone to breathe.



Why are children more at risk from breathing air pollution?

Children face special risks from air pollution because their lungs are still growing and because they are so active and breathe in a great deal of air.

Eighty percent of the tiny air sacs in the lungs develop after children are born. Researchers have found that people who grew up in more polluted areas face increased risk of having reduced lung growth, and that their lungs may never recover to their full capacity. In addition, the body's defenses that help adults fight off infections are still developing in children. Children have more respiratory infections than adults, which also seems to increase their susceptibility to air pollution.

Children are often outside for longer periods and are usually more active when outdoors. Compared to adults, children also breathe more air for their body weight. Consequently, they inhale more polluted outdoor air than adults typically do.

Are certain students more at risk?

While all children are especially vulnerable to air pollution, children with existing health issues - including asthma - are at an even greater risk. Children with asthma are more likely to have an asthma episode on days with unhealthy levels of air pollution.

What are some of the main sources of outdoor air pollution?

There are many sources of outdoor air pollution. Some of the biggest sources include power plants and factories; exhaust from cars, trucks and other vehicles; smoke from wood burning, prescribed fires and wildfires (which can travel hundreds of miles).

What can schools do to help protect children from outdoor air pollution?

When air pollution levels reach "Orange" or "Red" on the AQI, children (especially children with asthma) should avoid prolonged outdoor physical exertion. Schools can protect children from outdoor air pollution by establishing policies and practices to protect their health. These include:

- Raising awareness about the health harms of outdoor air pollution (feel free to use our [Clean Air for Kids Quiz](#))
- Implementing the [EPA's Air Quality Flag program](#)

The EPA has resources available on the [AQI website](#), including [classroom activities](#).