



Air Quality

At Home, School, and Play



No matter who you are, where you live, or how healthy you are, the quality of the air you breathe can have an impact on your health. Every day, we are exposed to chemicals and pollutants both indoors and outdoors. Learning about how to reduce exposure to outdoor air pollutants and how to improve indoor air quality will help us to maintain and improve our health.

The Facts: Outdoor air quality

Outdoor air pollution is a mixture of gases, particles, and many other chemicals. In Canada, air pollution comes from vehicles, industrial facilities, forest fires, wood burning, construction, agriculture, the oil and gas industry, and electricity generation. Exposure to air pollution, even at low levels, can lead to disease, increased hospitalizations, and even premature death. Air pollution can affect breathing, irritate lungs and airways, and worsen chronic diseases (e.g., asthma, heart disease). To help improve air quality, carpool, ride your bike, take the bus or walk more often, use a woodstove or fireplace only when necessary, and save energy.

Ways to reduce exposure to outdoor air pollution:



Avoid or reduce strenuous outdoor activities when air pollution levels are high.



Choose low-traffic routes for walking, running, or cycling, especially during rush hour.



Exercise in parks and green spaces, away from major roads.



Learn how to read the Air Quality Health Index (AQHI) to understand what the air quality around you means to your health.



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The Facts: Indoor air quality



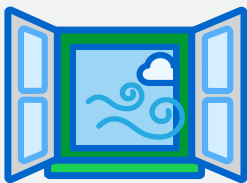
Indoor Air Quality (IAQ) refers to the air quality within a building (such as a home or school), and often refers to how it affects the health and comfort of people within the building. It is estimated that Canadians spend 90% of their time indoors.



Short-term health effects from indoor air pollutants include irritation of the eyes, nose, and throat, headaches, dizziness, and fatigue, while long-term effects include some respiratory diseases, heart disease, and cancer. Understanding and reducing indoor air pollutants can help reduce the associated health risks for building occupants.



Causes of poor indoor air quality can include smoking, heating, cooking, dampness and water leaks, activities that take place in an attached garage (combustion-related), poor ventilation, certain hobbies (e.g., woodworking), household items (e.g., furniture, cleaning products), personal care products (e.g., perfumes), or building materials.



Strategies to maintain and improve indoor air quality include removing or reducing sources of air contamination (e.g., keep humidity levels low, use exhaust fans when cooking, make your home smoke-free, install smoke and carbon monoxide alarms, house cleaning, avoid car idling in the garage), improving ventilation, and filtering the air.

Want more information on air quality and your health?

- Air Quality and Health (Health Canada) - [English](#) / [French](#)
- About the Air Quality Health Index (Health Canada) - [English](#) / [French](#)
- Air Quality Health Index Infographic (Health Canada) - [English](#) / [French](#)
- Air Quality and Health Index video - [English](#) / [French](#)
- Health Impacts of Air Pollution in Canada Infographic (Health Canada) - [English](#) / [French](#)
- Maintain and Improve Indoor Air Quality Infographic (Health Canada) - [English](#) / [French](#)
- Air Quality Health Index publications - [English](#) / [French](#)



Learning about air quality

Have students explore how the surrounding environment can impact health through exposure to air pollution. Have students determine causes of poor indoor and outdoor air quality and actions that can be taken to reduce risks to maintain and improve health. Students can then develop an awareness and understanding of daily air quality using the Air Quality Health Index (AQHI).

Before you begin:

While all Canadians can experience health issues on days when the air is heavily polluted, there are certain groups who may be more at risk including children and seniors; people with underlying health conditions including asthma, cardiovascular diseases, and diabetes; active people who exercise or work hard outdoors; and those living near sources of industrial pollution or busy roadways. It is important to approach this topic with sensitivity and consideration for those who may be at greater risk.

Subject Areas:

- Science
- Health & Physical Education

Part 1: Understanding outdoor and indoor air quality

We are exposed to chemicals and pollutants both indoors and outdoors on a daily basis. Exposure to air pollution, even at low levels, can be a risk to our health. Learning about indoor and outdoor air quality and ways to reduce our exposure, will help us to maintain and improve our health.

- 1 As a class, review the main causes of outdoor and indoor air pollution using the *Air Quality: At Home, School, and Play* information sheet (see pages 1-2).
- 2 Have students break-off into smaller groups to conduct research on indoor and outdoor air pollution. Use the following resources to support their research:
 - [Air Quality and Health](#)
 - [Health Impacts of Air Pollution in Canada Infographic](#)
 - [Maintain and Improve Indoor Air Quality Infographic](#)
- 3 Have students answer the following questions and record their findings on the *Indoor and Outdoor Air Quality Worksheet* (see page 4).

Outdoor Air Quality

1. What are some sources of outdoor air pollution in Canada?
2. How can air pollution affect human health?
3. What are some strategies to reduce exposure to outdoor air pollution?

Indoor Air Quality

1. What are some of the causes of poor indoor air quality in Canada?
 2. How can indoor air pollution affect human health?
 3. What are some strategies to maintain and improve indoor air quality?
- 4 Based on their research, have students share their learning through the creation of posters, presentations, or brochures.



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Indoor And Outdoor Air Worksheet

Outdoor Air Quality

- 1 What are some sources of outdoor air pollution in Canada?

- 2 How can air pollution affect human health?

- 3 What are some strategies to reduce exposure to outdoor air pollution?

Indoor Air Quality

- 1 What are some of the causes of poor indoor air quality in Canada?

- 2 How can indoor air pollution affect human health?

- 3 What are some strategies to maintain and improve indoor air quality?



Part 2: Learning to use the Air Quality Health Index

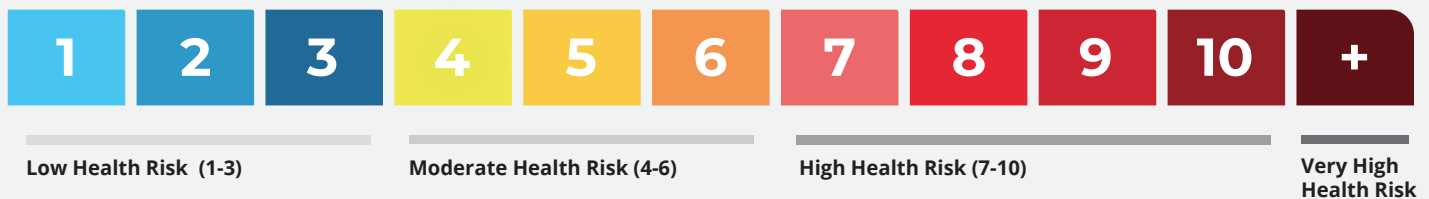
Please note: Internet access will be required for this activity.

The Air Quality Health Index or "AQHI" is a scale designed to help you understand what the air quality around you means to your health. In this activity, students will have an opportunity to learn about the Air Quality Health Index and learn how to use it.

- 1 Introduce students to the Air Quality Health Index using the *Air Quality Health Index* information box (below).
- 2 Have students conduct research on the Air Quality Health Index using the *Air Quality Health Index Worksheet* (see pages 6-7).
- 3 Regroup and go over results and questions.

The Air Quality Health Index

The AQHI measures the air quality in relation to your health on a scale from 1 to 10 (the higher the number, the greater the health risk), with a category that describes the level of health risk (e.g. Low, Moderate, High, or Very High Health Risk).



There are health messages for both the general population and the 'at risk' population, providing suggestions on how you might adjust your activity levels depending on your individual health risk from air pollution.*

Health Risk	Air Quality Health Index	Health Messages: At Risk Population	Health Messages: General Population
Low	1 - 3	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
Moderate	4 - 6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High	7 - 10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High	Above 10	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

* People with heart or breathing problems are at greater risk. Follow your doctor's usual advice about exercising and managing your condition.

Adapted from: www.canada.ca/en/environment-climate-change/services/air-quality-health-index/understanding-messages.html



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The Air Quality Health Index Worksheet

Learning about the Air Quality Health Index (AQHI)

1 Navigate to the following webpages to become familiar with the Air Quality Health Index (AQHI) and to conduct your research:

- [About the Air Quality Health Index](#)
- [Understanding Air Quality Health Index messages](#)
- [Health Risks of Air Pollution](#)
- [How to Use the Air Quality Health Index](#)
- [Air Quality Health Infographic](#)

2 Answer the following questions:

1. What is the Air Quality Health Index?

2. What does a higher number indicate on the Index?

3. What are the three pollutants that the AQHI uses to calculate health risk?

4. When should you use the AQHI?

5. List three people who are at higher risk from air pollution.

6. When the health risk is “moderate”, what is the health message to at-risk populations?

7. When the health risk is “moderate”, what is the health message to the general population?



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The Air Quality Health Index Worksheet

Learning to use the Air Quality Health Index (AQHI)

- 1 Navigate to the [Air Quality Health Index](#) to determine the conditions in your region.
- 2 Find your province/territory and then your closest city.
- 3 What are the observed conditions? Provide the risk level and number:

- 4 What is the health message for at-risk populations?

- 5 What is the health message for the general population?

- 6 What will the conditions be tomorrow? Provide the risk level and number: