

Global Voices is a weekly column written by Craig and Marc Kielburger examining current events, topics and issues affecting local and global communities. Each month, engaging classroom resources are created to accompany one column to help educators bring world issues into the classroom in a digestible manner. For more information on how to sign up please visit WE.org/global-voices-signup.

Fact Sheet

- Based on data from 4,300 cities in 108 countries, the World Health Organization estimates that nine out of 10 people on the planet breathe air that contains high levels of pollutants. ([CNN](#))
- Air pollution affects everyone around the world, but the impact is particularly felt among people in developing countries. Ninety-eight percent of people in cities in low and middle income countries live in air that does not meet WHO air quality guidelines; that decreases to 56 percent in high-income countries. ([World Health Organization](#))
- An estimated 9 million people died due to air pollution in 2015 ([CNN](#)); 90 percent of those deaths occurred in developing countries. ([Huffington Post](#))
- The main causes of air pollution vary around the world; in parts of Europe, the culprit is nitrogen from farming, fertilizer and animal waste ([The Guardian](#)); in India, crop burning couples with pollution caused by traffic to create dense smog ([Times of India](#)); in the United States and Canada, the primary sources are transportation (cars, buses, planes and trucks) and industry (power plants, oil refineries and factories). ([National Park Service](#) and [Government of Canada](#))
- Forest fires are another prominent cause of air pollution. ([CNN](#))
- The particles most commonly measured are PM10 and PM2.5, meaning pieces of matter that are 10 or 2.5 micrometers or less in diameter respectively; common particles of PM2.5 include black carbon, sulfate and nitrates emitted by cars and industry. ([World Health Organization](#))
- All 10 of the cities with the worst air quality in the world, as measured by the WHO, are in India. ([Vice News](#))
- In developing countries, a common cause of pollution is indoor stoves, which often rely on wood or coal; around three billion people still do not have access to clean cooking fuels. ([World Health Organization](#))
- Many countries, including the United States and Canada, have made strides in improving their air quality in recent decades. ([American Lung Association](#), [University of Toronto](#))



WE Learning Framework Skills



These icons identify the most relevant skills students will develop using this resource. Learn more about the WE Learning Framework at WE.org/we-schools/program/learning-framework/.

Subject

- ▶ English Language Arts
- ▶ Science
- ▶ Media Literacy
- ▶ Social Studies

Materials

- ▶ Front board
- ▶ Paper and writing utensils
- ▶ Computer/tablet with Internet access
- ▶ Craft paper

Key Terms

- ▶ **Air Quality**—Air quality refers to how much pollution is present in the air. Measurements of air quality look at three types of particles—ground-level ozone (O₃), fine particulate matter (PM 2.5) and Nitrogen dioxide (NO₂)—to assess how safe or harmful the air is.
- ▶ **Particle**—A minute portion, piece, fragment or amount; a tiny or very small bit.

Classroom Activity - Grades 9 to 12

Essential Question:

- ▶ How do the choices we make affect ourselves, our communities and the world?

Learning Goals:

Students will:

- ▶ Understand the causes and effects of air pollution for people and the planet
- ▶ Explore the actions they can take to address the issue of air pollution locally and globally

Discussion:

1. What affect does air pollution have on human physical and mental health?
2. Why is air pollution easy to ignore?
3. What impact did the London art exhibition have on participants?
4. What do the authors mean when they say, "Experiences like this affect people in ways that facts and figures rarely do"?
5. The article claims that air pollution is "the world's single largest environmental risk". Do you agree with this statement? Why or why not?

Warm Up (20 minutes)

Begin the lesson by showing students one or more of the following videos.

- ▶ "Air Pollution 101—National Geographic," www.youtube.com/watch?v=e6rglsLy1Ys (3:52)
- ▶ "WHO: Breathe Life—How Air Po
- ▶ "WHO: Breathe Life—How Air Pollution Impacts Your Body," www.youtube.com/watch?v=GVBey1JSG9Y (1:18)
- ▶ "This Is How Bad New Delhi's Air Pollution Is," www.youtube.com/watch?v=Yx7Ar21_Q1I (2:44)
- ▶ "A Day in The Life Of Beijing's Apocalyptic Smog," www.washingtonpost.com/news/worldviews/wp/2017/01/05/a-day-in-the-life-of-beijings-apocalyptic-smog/?utm_term=.90d9c9dbbfe9 (2:26)

In pairs or small groups, encourage students to use the following questions to reflect on the videos:

- a. What surprised you about the video?
- b. What did you learn that you didn't know before?
- c. What questions do you have about the video or the topic of air pollution?

As an alternative, divide students into groups and give them an opportunity to rotate around the classroom to view each video on a separate device and then discuss the questions above.

Bring students back together and discuss their responses to the questions. Record students' responses on the front board or on a piece of chart paper. Return to the responses and questions throughout the lesson to encourage students to reflect on their learning

Investigate and Learn (60 minutes)

Divide students into pairs and give each pair a copy of the article "Making the Invisible Visible: Tackling Air Pollution in Canada." Encourage pairs to take turns reading the article aloud, stopping to discuss after each paragraph. Once students have read the article, ask them to respond to the questions in the Discussion section.

Provide each pair with a piece of chart paper. Ask each pair to consider what they learned from the videos and the article, and make a list of at least five risks that air pollution poses to them as individuals, now and in the future. Once they have finished, ask them to turn the paper over and list at least five risks air pollution poses to others and to the planet.

Post each paper around the room and, as a class, rank the top-five risks students feel air pollution poses to them and the top-five risks it poses to others and the planet.

Map It (40 minutes)

Draw or project a large world map on the front board or a piece of craft paper. Encourage students to use the website <https://waqi.info> to investigate the air quality of cities around the world and document it on the map. Make sure students take time to familiarize themselves with the Air Quality Scale and the criteria for each level.

Dive Deeper

Challenge students to use the map to identify patterns or trends of where the cities with the poorest air quality index are located. Encourage students to use their research skills to explore why these patterns might occur and what factors contribute to poorer air quality in a specific city or in a specific region. Students can present their findings in a written report or they can present them orally to the class.

As an alternative, host a roundtable where students can debate and discuss the patterns and trends they discovered and what they feel are the contributing factors.

Once students have had an opportunity to explore and learn more about the risks and consequences associated with air pollution, encourage them to find a way to contribute to positive change. Students can consider finding ways to improve the air quality within their own school by creating a community garden or encouraging students and families to choose alternative modes of transportation. They can also consider contributing to a global solution by raising awareness for the negative impact industries around the world are having on global air quality.

For more ideas and ways to take action, visit www.WE.org/we-schools/program/campaigns/we-go-green-global and sign up for the WE Schools WE Go Green campaign.