

Key Messages: Grades K-2



(Adapted from EPA's Air Now Curriculum)

Breathing dirty air is not good for people. For example: You might feel like it's harder to breathe, you might cough, or your chest might feel tight.

You can help protect your health when the air is dirty. Here are three things you can do.

1. Find out how clean your air is each day.

- You can do this by checking the AQI, just like checking the weather report. The AQI (or the Air Quality Index) uses colors to tell you how clean or dirty the air is. For example, green means the air is clean. Red means the air is unhealthy.
- You can always find the AQI on the Internet at a site called AIRNow at: www.airnow.gov. You also might hear about the AQI on TV during the weather forecast or on the radio, or you might see it on the weather page in the local newspaper.
- Tell your parents about the AQI so they can check how clean or dirty the air is.

2. If you play outside when you know the air is polluted, you can protect your health by taking it easier. For example, walk instead of run, take breaks often, or play outside at another time or on another day when the air is cleaner.

3. If you notice any signs when you are playing outside like coughing, pain when you take a deep breath, chest tightness, or wheezing, stop playing and tell an adult.

- If you have asthma, pay special attention on polluted days. If you think you or a friend may be having an asthma attack, tell an adult.

Background Summary

Some days, the air is clear and smells fresh and clean. Clean air is air that has no harmful levels of pollutants (such as dirt and chemicals) in it. Clean air is good for people to breathe.

However, on a hot day with no wind—especially in some cities—the air can feel heavy and may have a bad smell. Sometimes, the air can even make your chest feel tight, or make you cough. When too much dirt or too many chemicals get into the air, the air is dirty, or polluted. Polluted air is not good for people to breathe.

Scientists measure pollution in the air across the country. Then they use something called the Air Quality Index, or AQI for short, to tell people how clean or dirty the air is each day in different places. The AQI uses colors, words, and numbers to tell you about the air.

Using EPA's online Air Quality Index color game, students will learn that air quality can be

classified according to different levels of pollution, and that these levels can be represented by colors and/or numbers. They will also learn that they can find out what the Air Quality Index is on any given day and understand what it means for people's outdoor activities. This lesson also introduces students to different types of transportation and ways that transportation choices can affect air quality.

Materials Needed

- Internet access (preferable) (or, print version of AQI Color Game included with this lesson)
- Computer printer, preferably color, if not conducting activity online
- Chart of AQI colors and their meanings (simplified print version included)
 - AQI color posters (online or printed, see Step 6)

Key Questions

- What is air pollution? (*Answer:* Air pollution is when too much dirt or chemicals get into the air.)
- What is the Air Quality Index, or AQI? (*Answer:* The AQI tells us how clean or dirty the air is each day.)
- How can you and your family help reduce air pollution? (*Possible Answers:* Walk more, ride bikes, or carpool. [Carpooling is when more than one person not related to each other share a ride somewhere.] People can also take the bus, train, or subway to reduce air pollution instead of driving in their cars.)

Vocabulary

Air Pollution—Occurs when too much dirt or too many chemicals get into the air and make it dirty.

Air Quality Index—Colors and numbers used to tell how clean or dirty the air is.

Steps

1. Have the class play the *AQI Color Game* online at:
www.airnow.gov/index.cfm?action=aqikids.games#easy or hand out copies of the game (Easy version).

It may take a minute for the color chart to load onto your computer.

(Note: The AQI Color Game is available online at different levels: easy, medium, and hard. First have students play the “easy” game, which discusses AQI colors only. Then add a discussion of the AQI numbers, as discussed in the “Steps” below. AQI Toolkit for Teachers 16 What Color Is My Air Today? The medium and hard versions of the game are appropriate for students in Grades 3-5.)

If printing, also print out the answer key for the teacher. It is best if the student game can be printed in color.

2. Discuss the AQI colors and their meanings with students. Tell students that each day, the AQI is one of these colors. The colors tell you how healthy the air is to breathe that day. The colors go from Green to Yellow to Orange to Red to Purple, with each color telling you that the air is less clean than the color before.

(*Note:* If students ask, you can tell them that the last AQI color, Maroon, which represents the worst air quality, is usually not included with the other AQI colors because air quality in the U.S. has not been Maroon in many years. This is probably because people have been working hard to clean up the air.)

Give students the following simplified chart of the AQI colors and their meanings, and read the chart to them.

3. Tell students to look at their AQI Color Game Student Worksheet. With the help of the chart of AQI colors and meanings you gave them in Step #2, tell students to draw a line from the AQI words on the left side to the correct color on the right side of the worksheet. For younger students (e.g., kindergarten), the teacher can read the words and ask students which words go with which colors. For older students (e.g., Grade 2), the teacher may need to assist students in reading and understanding some of the key words, as discussed in the table above.

4. Discuss the correct answers using the Teacher Answer Sheet.

5. Add a discussion of the AQI numbering system. An index uses numbers to tell people how good or bad something is. For example, you might say your school lunch is a 1 (very good) or a 5 (yucky). The Air Quality Index uses numbers from 0 to 500. These numbers are used to decide the AQI color for a particular day. On days measuring less than 100, the air is clean. If the air is dirtier, the numbers get bigger. On days measuring more than 100, the air can be bad for you to breathe.

If Color is...

What This Means for
Outdoor Activity

Green

The air is “**good**” and it’s a great day to be active outside!

Yellow

The air is “**moderate**” - it’s fine for most people to be active outside. However, people who are unusually sensitive to air pollution may notice symptoms such as coughing or shortness of breath. These are signs to take it easier.

Orange

The air is “**unhealthy for sensitive groups.**” This group can include people with heart or lung problems (such as asthma), kids, and older grown-ups, who should take it a little easier.

Red

The air is “**unhealthy.**” Everyone should take it a little easier or spend less time being active outside.

Purple

The air is “**very unhealthy.**” People should be active indoors on purple days.