

GRADE LEVEL EXPECTATION: 4-5

WHAT COLOR IS MY AIR TODAY?

CONTENT AREA: MATHEMATICS, SCIENCE, READING, WRITING AND COMMUNICATING

LESSON TIME:

30 min, initial;
additional class
time as needed

MATERIALS:

1. Internet access
(black and white
copies of the AQI
Color Game and
Answer Sheet are
included at the
end of this lesson
for reference, but
using the online
color version is
preferred)

2. Computer
printer
(preferably color,
if not conducting
activity online)

3. Pencils

TAKE HOME: None

OBJECTIVE:

Students will understand how breathing the air can affect people's bodies and health, be able to describe how colors and numbers can represent different classifications of something, such as levels of air quality and understand that air pollution, driving, and health are connected. Lesson courtesy of Walking for Health & the Environment Curriculum, WalkBoston.

NOTE:

Review the websites ahead of time. Use a smartboard to guide students if available.

<http://www.airnow.gov/index.cfm?action=aqikids.index>

4TH GRADE STANDARDS:

CONTENT AREA: Mathematics

2: Patterns, Functions, and Algebraic Structures

1. Number patterns and relationships can be represented by symbols.

CONTENT AREA: Mathematics

3: Data Analysis, Statistics and Probability

1. Visual displays of classroom data can be use to summarize information across content areas.

CONTENT AREA: Reading, Writing and Communicating

4: Research and Reasoning

1. Comprehending new information for research is a process undertaken with discipline both alone and within groups.

CONTENT AREA: Science

2: Life Science

3. There is interaction and interdependence between and among living and nonliving components of ecosystems.

5THH GRADE STANDARD:

CONTENT AREA: Mathematics

3: Data Analysis, Statistics and Probability

1. Visual displays are used to interpret data

CONTENT AREA: Reading, Writing and Communicating

4: Research and Reasoning

1. Identifying and evaluating concepts and ideas have implecations and consequences

PROCEDURE:

1. Access the Air Quality Index Color Game online or distribute printed copies.

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Have the class play the AQI Color Game online, or print out and hand out copies of the game (easy version) from the EPA AIRNow website URL: <http://www.airnow.gov/index.cfm?action=aqikids.gamestxt>.

(This lesson is based on the game version that can be printed out and completed found towards the bottom of the Internet page. You can also [or instead] play the animated online version.)

NOTE TO TEACHERS: It may take a minute for the color chart to load onto your computer. Also, the AQI 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. 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 meaning 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: 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.)

3. Tell students to look at their AQI Color Game sheet.

Tell them to draw a line from the AQI words on the left side to the correct color on the right side. For younger students (e.g., kindergarten), the teacher can read the words and ask students which words go with which colors. For younger 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.

Here is how the AQI numbers match up with the AQI colors:

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| If Color is... | This Means... |
|----------------|---|
| Green | The air is good and healthy to breathe. |
| Yellow | The air is “moderate” - it’s fine for most people, including children like you. However, if you know you are extra sensitive to pollution, you might want to limit the time you spend playing outside when the AQI is yellow. |
| Orange | The air is unhealthy for sensitive groups. People with lung problems, such as asthma, and active kids and grown-ups should limit how long or how hard they play actively outside. If you don’t feel so great, take it a little easier when the AQI is orange. |
| Red | The air is unhealthy. People with lung problems, such as asthma, and active kids and grown-ups should not spend a long time playing actively outdoors. Everybody else should limit how long they are active outside. |
| Purple | The air is very unhealthy. People with lung problems, such as asthma, and active kids and grown-ups should not spend any time playing or being active outdoors. Everyone else should limit outdoor activities. |

| AQI Numbers | AQI Colors |
|-------------|------------|
| 0 to 50 | Green |
| 51 to 100 | Yellow |
| 101 to 150 | Orange |
| 151 to 200 | Red |
| 201 to 300 | Purple |

6. Have students view the AQI posters.
 Next, have students view the six AQI color posters online, or print out several sets of the posters and pass them around the class, available

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from the EPA AIRNow website at: [http: www.epa.gov/airnow//aqikids/pdffiles/posters.pdf](http://www.epa.gov/airnow//aqikids/pdffiles/posters.pdf)

It is best if these posters can be printed out in color.

7. Discuss the six posters in sequence (from Green to Purple), which will reinforce the lesson thus far, including both AQI colors and numbers.

8. Remind students that to reduce air pollution, they and their families and friends can walk more, ride their bikes, carpool, and take the bus instead of driving in their cars.

For older students (Grades 3-5), play the Medium and/or Hard versions of the AQI Color Game. Add more in-depth discussion from the EPA website at: [http: www.epa.gov/airnow//aqikids/pdffiles/aqirefer.pdf](http://www.epa.gov/airnow//aqikids/pdffiles/aqirefer.pdf).

If using the Internet, go to <http://www.airnow.gov> and click on "Today's Forecast" then click on a city located nearby. Ask students what the air quality is for today and expected to be tomorrow.

Have students try to find and cut out the Air Quality Index in the newspaper and bring it in to class to discuss; the AQI can often be found