

## Lesson 11- Unit Review

### Air Quality Trivia Time

#### Background Information

The Air Quality Index (AQI) is an index for reporting daily air quality. It tells you how clean or polluted your air is and what associated health effects might be a concern for you. The AQI focuses on health effects you may experience within a few hours or days after breathing polluted air. EPA calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established national air quality standards to protect public health.

To understand how the AQI works, think of it as a yardstick that runs from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health concern. For example, an AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value represents hazardous air quality.

An AQI value of 100 generally corresponds to the national air quality standards for the pollutant which is the level EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy- at first for sensitive groups of people, then for everyone as AQI values get higher.

The purpose of the AQI is to help you understand what local air quality means to your health. To make it easier to understand, the AQI is divided into six categories. Each category corresponds to a different level of health concern. The levels of health concern and what they mean are:

- "Good" The AQI value for your community is between 0 and 50. Air quality is considered satisfactory, and air poses little or no risk.

- “Moderate” The AQI for your community is between 51 and 100. Air quality is acceptable, however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are usually sensitive to ozone may experience respiratory symptoms.
- “Unhealthy for Sensitive Groups” When AQI values are between 101 and 150, members of sensitive groups may experience health effects. This means they are likely to be affected at lower levels than the general public. For example, people with lung disease are at a greater risk from exposure to ozone, while people with either lung disease or heart disease are at a greater risk from exposure to particle pollution. The general public is not likely to be affected when the AQI is in this range.
- “Unhealthy” Everyone may begin to experience health effects when AQI values are between 151 and 200. Members of sensitive groups may experience more serious effects.
- “Very Unhealthy” AQI values between 201 and 300 trigger a health alert, meaning everyone may experience more serious health effects.
- “Hazardous” AQI values over 300 trigger health warnings of emergency conditions. The entire population is more likely to be affected.

### Objectives

After completing the lesson, the students will be able to:

1. Name the categories of the Air Quality Index.
2. Explain the importance of the Air Quality Index.
3. Answer air pollution trivia questions.

### Materials

1. White construction paper

2. Masking tape
3. Scissors

### Preparation

1. Get six sheets of large construction paper. On each sheet, write a different AQI category with the AQI value for that particular category.
2. Divide one wall of the room into six areas. Each area needs to be labeled with one of the different AQI categories. Place the labels in order from "Hazardous" to "Good".

### Procedure

1. Ask if any of the students have heard of the Air Quality Index. Explain to the students what the Air Quality Index is and how it works.
2. Show the students the different categories on the wall and talk about the AQI values. Explain the health affects for each category.
3. Review ways that "Unhealthy" or "Hazardous" days could be prevented.
4. Review what has been learned during the *Let's Clean the Air* unit. Have each student write ten air pollution trivia questions with the answers on paper. The students can use their notes or any resource materials in the classroom to write the questions. Collect the papers.
5. On construction paper, have the students in pairs draw and color something that they can do to help reduce air pollution. (For example, they can draw themselves riding a bicycle to school or turning off the lights at home.) Have the students

cut out their drawings. The drawings will be the position markers used in the *Let's Clean the Air* trivia game.

6. Place all the drawings under the "Hazardous" category on the wall. Tell the student pairs that they will work together to try to move their markers from the "Hazardous" category to the "Good" category. They will be able to move their markers by answering the air pollution trivia questions. The number of questions that they must answer correctly varies depending on the category where their marker is located.

"Hazardous" = 5 questions

"Very Unhealthy" = 4 questions

"Unhealthy" = 3 questions

"Unhealthy for Sensitive Groups" = 2 questions

"Moderate" = 1 question

"Good" = 0 questions (YOU WIN!!)

Explain to the students that we want the AQI to be "Good" so the goal is to travel from "Hazardous" to "Good" by being knowledgeable about air pollution. The number of questions for each category represents the amount of dangerous pollutants in the air. (The "Hazardous" category is the most polluted. There are no dangerous pollutants in the "Good" category.)

7. Begin by asking the student pairs the trivia questions written by the class. All student pairs begin in the "Hazardous" category and must answer five questions correctly before they can move their marker to the "Very Unhealthy" category. Once the students reach the "Good" category, they win.

### Extensions

1. Have the students make posters of each AQI category. Designate an area of the school where a daily AQI poster

could be placed. Have the students check the AQI level each day and place the corresponding poster in the appropriate place.

### Sources

"What is AQI?" *Lawton, Oklahoma Clean Air Program*, 2006.  
[www.cleanairlawton.org/information.php](http://www.cleanairlawton.org/information.php).