

Case Details

Case Title:

Out of Breath

Author(s):

Bethany Turner, Emory University
Dericka DeLoney, Columbia Middle School
Jason Haensly, Emory University

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Grade Level(s):

Middle School

Subject(s):

Earth Science

Summary:

A high school student is crushed when she is told that she should not play basketball with her friends at their local park because of her asthma. Her sensitivity to pollutants and toxins in the air means that she can no longer enjoy one of her favorite pastimes! Because she has spent most of her life in a city, it is suggested that her asthma is aggravated, possibly even caused, by the poor air quality in her city.

Suggested Citation:

Turner, B. L., DeLoney, D. Y., & Haensly, J. W. (2008). *Out of breath*. Retrieved June 03, 2012 from Emory University, CASES Online Web site:
http://www.cse.emory.edu/cases/casedisplay.cfm?case_id=543

Notes:

This case was adapted from *Air Quality Curriculum Project. (2005). Asthma case studies: The fading basketball star. Retrieved June 17, 2006 from the Environmental Education Outreach Program (EEOP) Problem-Based Learning Web site:*
http://www4.nau.edu/eeop/aqcp/bball_star.asp

Learning Objectives:

1. Identify sources of air pollution in Atlanta.
2. Determine the time(s) of day and day(s) of the week in which air pollution is at its highest and explain why, by monitoring local air quality indices, weather conditions and meteorological maps and traffic reports (or archives).
3. Determine whether season of the year affects pollution levels and explain climatic and human-induced reasons why.
4. Explain how the ozone layer protects the earth's surface and its inhabitants.
5. Describe the effects of different pollutants (chlorofluorocarbons, aerosols, CO, Freon, and nitrous oxides) on ozone depletion and its environmental and health-related consequences.
6. Describe the symptoms and causes of asthma, emphasizing air pollutants as a significant cause.

7. Differentiate and document different emissions quality in vehicles (new cars, old cars, hybrid vehicles, school bus, MARTA bus) through a "white sock" activity.

National/State Standards:

Georgia Performance Standards Addressed:

SCSh1. Students will evaluate the importance of curiosity, honesty, openness, and skepticism in science. (NSES Content Standard A)

S6E5. Students will investigate the scientific view of how the earth's surface is formed. (NSES Content Standard D). Describe methods for conserving natural resources such as water, soil, and air.

S6E6. Students will describe various sources of energy and with their uses and conservation. (NSES Content Standard D and F). Identify renewable and nonrenewable resources.