

Lesson Plan

Air Quality Graphing Activity

Appropriate Audiences: Upper School Math Class, Upper School Science Class

Objectives:

1. The student will demonstrate an understanding of how to collect daily air quality data available free on the Internet.
2. The student will demonstrate an understanding of how to enter data in an Excel spreadsheet.
3. The student will demonstrate an understanding of how to prepare an Excel line graph using the data.
4. The student will be able to identify the x and y axes and make sense of the outcome of the data that is graphed.

Resources Required: Ideally, teacher will have a computer with a projection system. Ideally, each student will have a computer with Microsoft Word and Internet access. If limited number of computers, divide up students to work in groups around each computer.

Discussion

**Ask students if they have ever heard an ozone forecast.
What did it tell them?
What is ozone?**

A colorless, unstable, toxic gas formed from oxygen by electrical discharges or ultraviolet light. It has three atoms in its molecule (O_3).

Demonstration

Demonstrate accessing the Texas Commission on Environmental Quality site and ask students to use the site to view today's ozone forecast.
http://www.tceq.state.tx.us/cgi-bin/compliance/monops/ozone_actionday.pl

Have students try changing the date and view historical data for the Ozone AQI Rating.

Open Excel and create a date column and an Ozone AQI Rating column. Enter a week's worth of Ozone AQI Ratings for Houston-Galveston-Brazoria. Have students do the same. Save the spreadsheet.

Demonstrate how to create and save a line graph that plots the week of data. Identify the X and Y axes.

Discussion

Ask students to describe their graphs. Do they see any trends or spikes for the week they chose?

Challenge for Assessment & Feedback

Ask students to select a different Metropolitan area for the same week, and to create a line graph for that area. Students should print the two charts. On the printout, students should write their comments to compare the two charts, identifying any trends or spikes, as well. Students will turn in charts and written comparisons for a grade.
