

## Group Details

# Brown Group: Visibility

<b>Group Summary:</b>	<b>Roles:</b>	<b>Assignment Summary:</b>
<p>This group will monitor the visibility by monitoring the webcam. They will compare the visibility and pollution color with respect to concentration and type of pollutant.</p>	<p>Assign roles.</p> <ol style="list-style-type: none"><li>1. Webcam tracker</li><li>2. Weather tracker</li></ol> <p>Pollution Trackers:</p> <ol style="list-style-type: none"><li>3. Ozone tracker</li><li>4. Carbon Monoxide (CO) tracker</li><li>5. Particulate tracker (PM<sub>10</sub> &amp; PM<sub>2.5</sub>)</li></ol>	<p>Each student will enter the data into the spreadsheet for whatever s/he is tracking.</p>

### COLLECT DATA: Set-up (1<sup>st</sup> time)

1. Decide on each of your roles (see above).
2. If you are a “Weather Tracker” or “Pollution Tracker,” go to the activity website (<http://www.airinfonow.com/html/airexercise/materials.html>) and click on “Get Your Spreadsheet.”
3. Save the spreadsheet onto your disk or computer.
4. Your monitoring location will be Rose Elementary. *Note: The PM tracker has to obtain data from Rose Elementary & Geronimo (together).*
5. As a group, decide what time of day you will monitor (e.g. 8 a.m.). It is recommended that you monitor sometime between 7-10 a.m. and/or 4-6 p.m.

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### COLLECT DATA: Everytime

Webcam Tracker	Weather Trackers	Pollution Trackers
<ol style="list-style-type: none"> <li>1. Go to the activity website and click on the “Visibility Page”</li> <li>2. View and save image to your disk.               <ol style="list-style-type: none"> <li>a. If a dialogue box appears with a warning, <b>CLICK</b> “CONTINUE.” This may happen 2 or more times.</li> <li>b. Look at the photos. Go to the <b>digital panorama</b>. <b>CLICK</b> on the image to bring up the full sized image.</li> <li>c. To save this image:                   <ul style="list-style-type: none"> <li>- <b>RIGHT CLICK</b> on the image. In the box that pops up <b>CLICK</b> “save image/picture as.” A box will appear.</li> <li>- Pick your <b>FOLDER</b>: In the box you can navigate to the folder where you are storing your images.</li> <li>- <b>NAME</b> your file. Use a standard format for each file. For example, a file saved on December 3, 2002 at 8am might be “02.12.03.8am.” This format also makes it easy to sort through large number of images from many years.</li> <li>- <b>CLICK</b> “<b>SAVE</b>.”</li> </ul> </li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Open the Excel spread sheet for “Brown Group: Visibility.”</li> <li>2. Go to the activity web site <a href="http://www.airinfonow.com/html/airexercise/materials.html">http://www.airinfonow.com/html/airexercise/materials.html</a>, click “Get Your Data” in the “Brown Group: Visibility” column to obtain current weather data.</li> <li>3. Enter the date you need into the <input type="text"/> From: and <input type="text"/> To: boxes.</li> <li>4. Enter the time you are monitoring into the boxes e.g <input type="text"/> 8:00 and <input type="text"/> 9:00. <i>(Note: If you are looking at the afternoon data remember to use military time – 13:00 for 1:00 p.m.).</i></li> <li>5. Select “Rose Elementary”, scroll down, and then click on “<b>show report</b>”.</li> <li>6. The abbreviations for the data you will collect are:               <ul style="list-style-type: none"> <li>- RH – relative humidity in percent</li> </ul> </li> <li>7. Enter the date into the “Brown Group: Visibility” spreadsheet.</li> <li>8. Enter the data into the spreadsheet (you will do this daily).               <ul style="list-style-type: none"> <li>- Be sure to save your worksheet.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Open your saved Excel spreadsheet.               <ol style="list-style-type: none"> <li>1. Go to the activity web site and click on “your data” in the “Brown Group: Visibility.”</li> <li>2. Enter the date you need into the <input type="text"/> From: and <input type="text"/> To: boxes.</li> <li>3. Enter the time you are monitoring into the boxes e.g <input type="text"/> 8:00 and <input type="text"/> 9:00. <i>(Note: If you are looking at the afternoon data remember to use military time – 13:00 for 1:00 p.m.).</i></li> <li>4. Select “Rose Elementary”, scroll down, and then click on “<b>show report</b>”.</li> <li>5. Enter the date &amp; data for your pollutant into the spreadsheet.</li> <li>6. Repeat until all the data is entered.</li> <li>7. Be sure to save your worksheet!</li> </ol> </li> </ol>

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### PRESENTATION PREP: Graphing & Photo Comparison

1. Your group needs to create graphs of your data and identify trends in the webcam photos

#### CREATE GRAPHS FOR POLLUTION & WEATHER DATA

2. In your spreadsheet, highlight the data for pollutant and the days you are investigating.
3. Click on the bar graph icon OR go to the “Insert” menu and select “Chart.”
4. Select “Column” for chart type then select “Next.”
5. Leave the data range alone and select “Series In: Columns.”
6. Now click on the “Series” tab (top of gray box).
7. Click in the box “Category (X) axis labels” and then go back to your spreadsheet and highlight the dates for your data. (This will change the x-axis labels to your dates).
8. Select “Next.”
9. Enter a “Chart Title” such as “Daily Carbon Monoxide Levels: Location” (or whatever your pollutant is).
10. Enter a “Category (X) Axis” such as “Date.”
11. Enter a “Value (Y) Axis” such as “PPM” (or whatever unit your pollutant or weather feature is measured in) then select “Next.”
12. Select “Place Chart: As New Sheet” and enter a label such as “CO Graph.”
13. Select “Finish.”

#### PHOTO COMPARISON

1. Place the photos in a format where you can look at the photos and the graphs at the same time.

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SUGGESTIONS: You may need to have:

- a) A photo of each day that corresponds with the high & low for a specific pollutant or weather event; OR
- b) A week's worth of photos per page with one graph; OR
- c) A week's worth of photos per page with several graphs, or, (or some other configuration).

This is up to you – just make sure your audience can see your data and understand it!

### PRESENTATION PREP: Find Trends

8. As a group, analyze trends in visibility and individual air pollutants (ozone, carbon monoxide,  $PM_{10}$ , and  $PM_{2.5}$ ) and weather.

Consider the following:

- How does weather affect visibility?
- Are there color's associated with different pollutants (e.g. brown, gray, white)?
- Does the pollution or weather affect only one section or level on the horizon? (Use a landmark)
- Are these trends consistent over the month, 2 months, 5 months?
- Develop one or more hypotheses to describe the trends. Be careful not to overstate your data.

### PRESENTATION

Present your data, graphs, hypothesis, and/or conclusions to your class.