Air Pollution: What's the Solution?	**Student Worksheet :** ***Weather's Role***

Name: _____ **Group:** _____

Weather's Role

PART 1: GATHER THE DATA

1. Take out a copy of the Air Quality Guide for Ozone.
2. Click on the link of the city **closest to your location**. Locate the city on the map and watch the animation several times.
3. Determine the AQI Color of the city for every hour listed on the table below and enter the data. (Hit the escape key to stop the animation at the specified time).
4. Write in the corresponding Air Quality condition (Good, Moderate, etc.) and Maximum AQI value (50, 100, 150, etc.). This information can be found in the Air Quality Guide for Ozone.
5. To determine the AQI Average value, find the average between the two numbers of the AQI range.
    - Example: Green has a range of 0 – 50, with an average, of 25.

Date and Location:						
Time	**AQI Color**	**Air Quality**	**Max. AQI Value**	**AQI Ave. Value**	**Temp. (°F)**	**Wind Speed (mph)**
Ex. 8:00	Green	Good	50	25	80 °F	8.4 mph
10:00						
12:00						
14:00						
16:00						
18:00						
20:00						
22:00						

AQI Colors, Air Quality and AQI Value		Wind Scale	
Good - Green 0 – 50 (average 25)		0 – 12 mph	light
Moderate - Yellow 51 – 100 (average 75)		13 – 24 mph	moderate
Unhealthy for Sensitive People - Orange 100 – 150 (average 125)		25 – 31 mph	strong
Unhealthy - Red 151 – 200 (average 175)		32 – 63 mph	gale
Very Unhealthy - Purple 201 – 300 (ave. 250)		64 – 73 mph	storm/hurricane

6. Again, click on the city you selected above to access the weather from the same date.

7. Determine and enter the Temperature (ºF) and Wind Speed (mph) data for every hour listed in the above table.

8. Make the following three bar graphs using the data in your table. Ask your teacher for assistance if you are unsure how to make the graphs.
   - Ozone v. Time
   - Temperature v. Time
   - Wind Speed v. Time

PART 2: ANALYZE THE DATA

Once you have completed gathering the data for the table, and created the three bars graphs, use the Air Quality Guide for Ozone and data to answer the following questions:

1. Which AQI colors were found in the data you collected? Circle all that apply:
   Green **Yellow** **Orange** **Red** **Purple** **Brown**

2. Do any of the colors you circled mean that the air is not healthy? Which colors?

3. Who are the people that must be careful when ozone levels are "Unhealthy for sensitive groups"?

4. Who has to be careful to avoid activity when the air is considered "Unhealthy"?

5. What should all people do when the air is considered "Very Unhealthy"?

Refer to your graphs to answer the following questions:

Temperature vs. Time Bar Graph:

6. What happens to the air temperature from 8:00 to 12:00? From 12:00 to 16:00? From 16:00 to 22:00?

7. What was the high temperature for the day? What time did it occur?

8. Explain why the temperature is usually lower in the morning and higher in the afternoon.

For the Wind vs. Time Bar Graph:

9. What was the strongest/highest wind speed during the day? What time did it occur?

10. When wind speed is low, are the ozone levels high or low? Provide a possible explanation.

For the Ozone vs. Time Bar Graph:

11. Explain what happens to ozone levels from 8:00 to 12:00? From 12:00 to 16:00? From 16:00 to 22:00?

12. What time of day are ozone levels the highest?

13. Explain why ozone levels are not high in the morning.

Review all the graphs together and answer the following questions:

14. Place your three graphs next to each other. According to your graphs and the answers you gave to the questions above, what seems to have a greater effect on increasing the amount of ozone: the temperature or the wind speed/strength? Why do think this is so?

15. As a class, write five sentences that sum up what you learned in this activity and what you think makes ozone increase or decrease.