Name_____

Patterns of Particle Pollution and Ozone

Test this hypothesis using data from the Midwest maps on the AIRNow web site or by looking at data given to you by your teacher:

"On a day when the AQI is red, the patterns throughout the day for the particle levels and the ozone levels are the same."

On EPA's AIRNow web site, look for a day when the AQI is red, indicating a particle pollution episode (see February 1-5, 2005, for example.) Using the animation for that day, put a dot in each color box that indicates the AQI for each hour. Follow an ozone episode in the same way (see June 24-25, 2003, for example.) Note that there are ozone measurements only from 8:00 a.m. to 10:00 p.m.

Date_____   Date_____

Location_____   Location_____

Type of pollutant: **Particles**

Time	Green	Yellow	Orange	Red
1 a.m.				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
Noon				
1 p.m.				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Type of pollutant: **Ozone**

Time	Green	Yellow	Orange	Red
1 a.m.				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
Noon				
1 p.m.				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

1. Describe the pattern throughout the day for particles and ozone.

2. What do the data suggest about your hypothesis? Explain your answer.

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Date_____   Date_____

Location_____   Location_____

Type of pollutant: **Particles**   Type of pollutant: **Ozone**

EXAMPLES

Time	Green	Yellow	Orange	Red
1 a.m.			X	
2			X	
3			X	
4			X	
5			X	
6			X	
7			X	
8			X	
9			X	
10			X	
11				X
Noon				X
1 p.m.				X
2				X
3				X
4				X
5				X
6				X
7				X
8				X
9				X
10				X
11				X
12				X

EXAMPLES

Time	Green	Yellow	Orange	Red
1 a.m.				
2				
3				
4				
5				
6				
7				
8	X			
9	X			
10	X			
11		X		
Noon			X	
1 p.m.				X
2				X
3				X
4				X
5				X
6				X
7			X	
8		X		
9		X		
10	X			
11				
12				

1. Describe the pattern throughout the day for particles and ozone.

   Particle counts remained consistently high, increasing as the day progressed. Ozone levels began at low levels, then increased in the afternoon and returned to green by 10:00 p.m.

2. What do the data suggest about your hypothesis? Explain your answer.

   The data do not support the hypothesis. The patterns are different.

Patterns of Particle Pollution and Ozone Data Set for Hypothesis Testing

Particle Pollution

Allen Park February 4, 2005

Midnight	Orange
1:00 a.m.	Orange
2:00	Orange
3:00	Orange
4:00	Orange
5:00	Red
6:00	Red
7:00	Red
8:00	Red
9:00	Red
10:00	Red
11:00	Red
Noon	Red
1:00 p.m.	Orange
2:00	Red
3:00	Red
4:00	Red
5:00	Red
6:00	Red
7:00	Red
8:00	Red
9:00	Red
10:00	Red
11:00	Red
Midnight	Red

Grand Rapids February 5, 2005

Midnight	Red
1:00 a.m.	Red
2:00	Red
3:00	Red
4:00	Red
5:00	Red
6:00	Red
7:00	Red
8:00	Red
9:00	Red
10:00	Red
11:00	Red
Noon	Red
1:00 p.m.	Red
2:00	Orange
3:00	Orange
4:00	Orange
5:00	Orange
6:00	Orange
7:00	Orange
8:00	Orange
9:00	Orange
10:00	Red
11:00	Red
Midnight	Red

Ozone

Holland June 25, 2003

8:00 a.m.	Yellow
9:00	Yellow
10:00	Orange
11:00	Orange
Noon	Red
1:00 p.m.	Red
2:00	Red
3:00	Red
4:00	Red
5:00	Red
6:00	Orange
7:00	Orange
8:00	Orange
9:00	Yellow
10:00	Yellow

Allen Park June 24, 2003

8:00 a.m.	Green
9:00	Green
10:00	Green
11:00	Yellow
Noon	Yellow
1:00 p.m.	Orange
2:00	Orange
3:00	Orange
4:00	Orange
5:00	Red
6:00	Orange
7:00	Yellow
8:00	Yellow
9:00	Yellow
10:00	Yellow