

Name \_\_\_\_\_

Period \_\_\_\_\_

## URBAN ECOLOGY—Air Pollution Lab

### 1. You showered and got ready for school.

- Add one drop of blue and one drop of yellow food coloring to your cup if this activity applies to you.

Blue—VOCs emitted by soap, shampoo, deodorant, hair spray, perfume, and fingernail polish.

Yellow—CO, NO<sub>2</sub>, PM<sub>10</sub>, and SO<sub>2</sub> emitted by combustion used to heat the water for the shower. Remember, electric water heaters often depend on combustion too, because a lot of power plants burn fossil fuels to generate electricity.

### 2. You put on your favorite shirt, which your mom had dry-cleaned for you.

- Add one drop of yellow food coloring to your cup if this activity applies to you.  
Yellow —VOCs emitted by the dry-cleaning process.

### 3. Coming to school, you took the bus or rode in a car.

- Add one drop of red food coloring to your cup if this activity applies to you.  
Red—CO, NO<sub>2</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOCs emitted by the engine in your school bus or car.

### 4. At lunchtime, you bought lunch in the cafeteria.

- Add one drop of yellow food coloring to your cup if this activity applies to you.  
Yellow—CO, NO<sub>2</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOCs emitted by cooking lunch, Styrofoam trays, and plastic utensils.

### 5. Going home, you took the bus or rode in a car.

- Add one drop of red food coloring to your cup if this activity applies to you.  
Red—CO, NO<sub>2</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOCs emitted by the engine in your school bus or car.

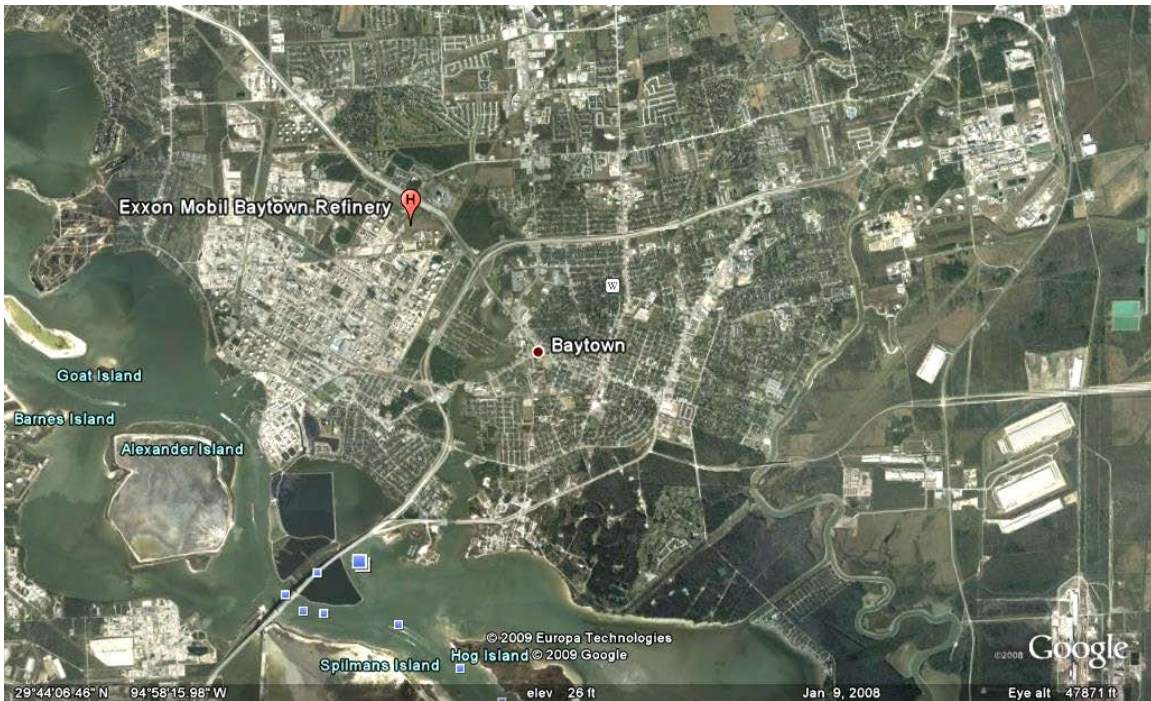
### 6. You mowed the lawn with a gasoline-powered lawnmower.

- Add one drop of green food coloring to your cup if this activity applies to you.  
Green—CO, NO<sub>2</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and VOCs emitted by your lawnmower's engine.

Answer the following questions:

1. Look inside your cups. If the air pollution around you were this apparent, would you want to breathe the air?
2. What other sources of air pollution, beyond those mentioned in this demonstration, could you think of as being produced in a single day?
3. What could you do to reduce the number of pollutants released each day?

Group Members \_\_\_\_\_



Exxon Mobil Oil Refinery (H) outside of Houston, Texas, The predominant winds range from west to east in the summer to south west to northeasterly in the winter.

Draw the wind directions for the two seasons and label them

Shade in the areas that may be affected by air pollution from the plant.

What else may be affected in this area other than air quality?

Groups Members \_\_\_\_\_



H & G Steel Manufacturing outside of Grand Rapids, Michigan; the prevailing winds are from the northwest towards the southeast in both winter and summer.

Draw the wind direction on the map.

Shade in the areas that may be affected by air pollution from this plant.

What else may be affected by this plant other than air quality?



Group Members \_\_\_\_\_



Sanolite Corporation is a chemical processing plant in Elizabeth, New Jersey. Prevailing winds are from the southwest to the north east in summer and northwest to the southeast in winter.

Draw in the wind directions and label them.

Shade in the areas that you think may be affected by air pollution.

Do you think that this plant could affect the environment in other ways?

Group Members \_\_\_\_\_



Hedstrom Plastics in Ohio processes materials to make plastics (nurdles) that are used in our everyday life. The prevailing winds are from the northwest to the southeast in the winter and mostly west to east in the summer.

Draw and label the wind directions on the map.

Shade in the areas that may be affected by air pollution from this plant.

Do you think that the plant may affect the environment in other ways other than by air pollution?