

# Be Aware of Our Air

Name \_\_\_\_\_

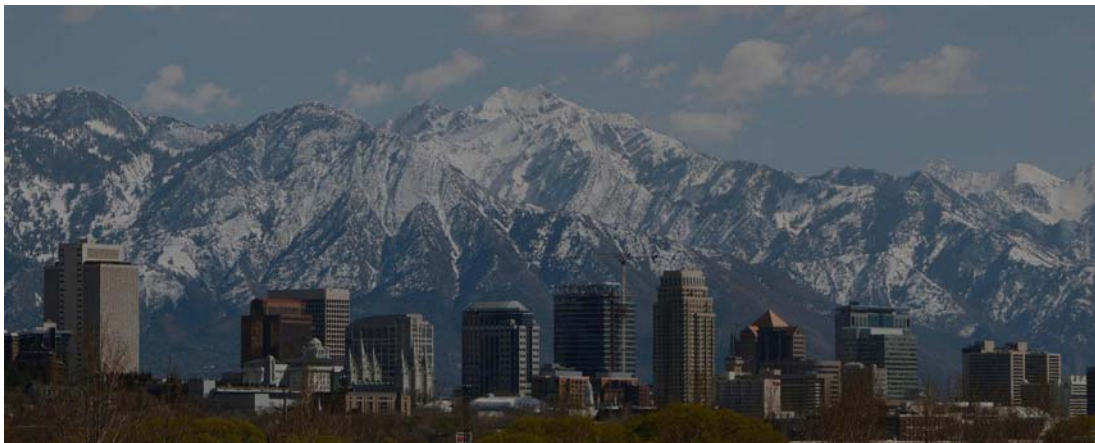
Phenomenon: Watch the phenomenon of the Smoke in a Bottle. Ask three questions about what you see.

- 1.
- 2.
- 3.

Utah has many natural resources that we use for energy. Visit [this](https://utah.maps.arcgis.com/apps/Styler/index.html?appid=9bdaac9ac81f4bcd84086fb57db05e48&lat=40.26317&lon=-110.96023&zoom=-1) website and list these natural energy resources. (<https://utah.maps.arcgis.com/apps/Styler/index.html?appid=9bdaac9ac81f4bcd84086fb57db05e48&lat=40.26317&lon=-110.96023&zoom=-1>)

Which of these sources are combusted for energy?

Label in this picture the particles from burning any fuel go to.





V	T			Y	N			
V	T			Y	N			
V	T			Y	N			
V	T			Y	N			
V	T			Y	N			

TOTAL minutes V (passenger cars) spent idling \_\_\_\_\_

TOTAL minutes T (trucks, SUV, minivans) idled \_\_\_\_\_

**ANALYZING IDLING OBSERVATION DATA**

Here is the approximate rate of fuel used during idling

Vehicle Type (Engine Size in Liters)	Idling Fuel Use (with no car accessories, like AC or radio, running)
Vehicle (passenger car)	0.0053 gal/min (or 0.32 gal/hr.)
Truck, SUV, minivan	0.0118 gal/min (or 0.71 gal/hr.)

[Source](#)

1. Add the total minutes of idling of each type of auto and fill in the chart below.

Automobiles	Total minutes idling
V (passenger cars)	V
T (trucks, SUVs, minivans)	T

2. To calculate the gas wasted by passenger cars multiply V total minutes idling by .0053

\_\_\_\_\_ V total minutes idling x .0053 gal/min = \_\_\_\_\_ gallons of gas

3. To calculate the gas wasted by trucks, SUVs, and minivans, multiply T total minutes idling by .0118

\_\_\_\_\_ T total minutes idling x .0118 gal/min = \_\_\_\_\_ gallons of gas

4. Find the total gallons of gas wasted.

\_\_\_\_\_ gal gas (passenger) + \_\_\_\_\_ gal gas (trucks, SUV, minivans) = \_\_\_\_\_ TOTAL gallons gas used idling

5. Find the amount of money wasted by idling

\_\_\_\_\_ Total gal gas x \_\_\_\_\_ (current price per gal) = \_\_\_\_\_ TOTAL cost

6. Find the amount of carbon dioxide (CO<sub>2</sub>) emitted

\_\_\_\_\_ Total gal of gas x 19.64 lbs. CO<sub>2</sub>/gal gas = \_\_\_\_\_ TOTAL CO<sub>2</sub> emitted

7. Compare your findings with others in the class and fill in the chart below

TOTALS	Mine	Class
Gallons of gas used idling		
Cost		
CO <sub>2</sub> emitted		

8. Analyze the data and write a conclusion in the space below.