

Be Aware of Our Air

Name _____

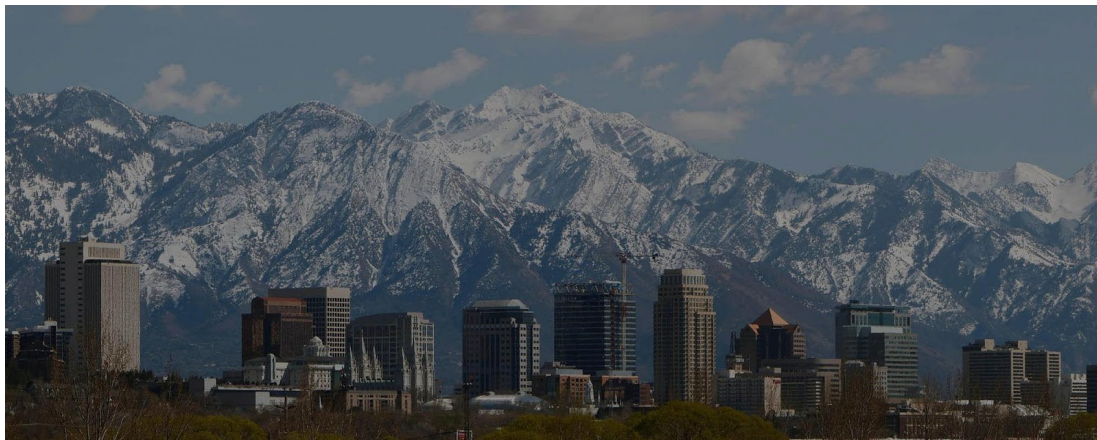
Phenomenon: Watch the phenomenon of the Smoke in a Bottle. Ask three questions about what you see.

- 1.
- 2.
- 3.

Utah has many natural resources that we use for energy. Visit [this](#) website and list these natural energy resources. ([Arc GIS Utah Energy Resources and Infrastructure](#))

Which of these sources are combusted (or burned) for energy?

In the picture below, label where the particles from burning fuel go.



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

_____ V 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 (CO2) emitted

_____ Total gal of gas x 19.64 lbs. CO2/gal gas = _____ TOTAL CO2 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		
CO2 emitted		

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