Name _____

Date _____ Pd ____

Chemistry – Unit 4 Notes - Dalton's Playhouse

In the late 18th century, Joseph Priestly, Antoine Lavoisier and others performed some critical experiments that helped Dalton develop his theories on the atomic model of matter. The simulation at the website:

http://web.visionlearning.com/dalton_playhouse/ad_loader.html

will allow you to replicate some of the key experiments these scientists performed. Answer the questions on the website and keep track of your responses on this notes sheet.

Part 1 – Priestley

Calx	100g	200g	216.59g
Mass of product			
Volume of product			

1. What happened to the mass of the material in the flask as it was heated?

2. What did you note about the masses of the gas produced and the mercury metal left in the flask?

3. State the relationship between the volume of gas produced and the mass of the calx that was heated.

Part 2 – Lavoisier

You will need to record the initial and final values for oxygen and phlogiston in each of the trials order to complete the table below.

		Used in Reaction		
	Original amount	Burn 1/3	Burn 2/3	Burn all
Mass oxygen				
Mass phlogiston				
Mass of product				
Volume oxygen				
Volume phlogiston				
Volume of product				

1. With relation to the volumes of the gases, in what specific proportion did phlogiston react with oxygen?

2. How did the mass of the gas in all three vessels before burning compare to the total mass after burning?

Part 3 – Diamond and Charcoal

0.20g diamond	Mass of oxygen	Volume of oxygen	Mass of product	Volume of product
initial				
final				
0.40g diamond	Mass of oxygen	Volume of oxygen	Mass of product	Volume of product
initial				
final				
0.20g charcoal	Mass of oxygen	Volume of oxygen	Mass of product	Volume of product
initial				
final				
0.40g charcoal	Mass of oxygen	Volume of oxygen	Mass of product	Volume of product
initial				
final				

1. How did the mass of gas formed compare if you used the same amount of diamond and charcoal?

Concepts Review

1. Which of the core concepts below most logically follows from the experiments you conducted in Track 1- Priestley?
   a. Red calx turns into mercury when it is heated.
   b. Some substances are composed of discrete amounts of two or more other substances.
   c. All substances can be broken down into simpler materials by heating them.

2. Which of the core concepts below most logically follows from the experiments you conducted in Track 2- Lavoisier?
   a. The total mass of the products in a chemical reaction is greater than the mass of the reactants.
   b. The total mass of the products in a chemical reaction is less than the mass of thereactants.
   c. The total mass of the products in a chemical reaction is exactly equal to the mass of the reactants.

3. Which of the core concepts below most logically follows from the experiments you conducted in Track 3- Diamond?
   a. Elements combine in specific, defined ratios in chemical reactions.
   b. Carbon reacts differently depending whether it is in the diamond or charcoal form.
   c. Carbon can form carbon dioxide when neither air nor oxygen is present.