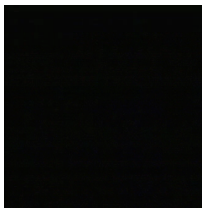
Laws

Law of _____ of _____

- Lavoisier concluded that when a chemical reaction occurs, mass is neither _____ nor _____ but only changed.



Video Clip

Law of Conservation of Mass

- In this law – mass is neither created nor destroyed – it is _____

Example

- Lets say that you have 10.00 g of mercury (II) oxide. It is placed into a flask and heated until it is converted into liquid mercury and oxygen gas. If I get 9.26 g of liquid mercury, how much oxygen gas was created?

Try this one…

- A reaction between sodium hydroxide and hydrogen chloride gas produces sodium chloride and water. A reaction of 22.85 g of sodium hydroxide with 20.82 g of hydrogen chloride gives off 10.29 g of water. What mass of sodium chloride is formed in the reaction?

Here's one that's a little different…

- Copper sulfide is formed when copper & sulfur are heated together. In this reaction 127 g of copper react with 41 g of sulfur. After the reaction is complete, 9 g of sulfur remains un reacted. How much copper sulfide was formed?

Law of _____ Proportions

- The elements that composed the compounds were always in a certain _____ by _____ .
- This principle is now referred to as the _____
- Another way to say this is…water is always water is always water…

Law of Definite Proportions

- The mass of the _____ is equal to the sum of the masses of the _____ that make up the compound.
- The ratio of the mass of each element to the total mass of the compound is a percentage called the _____ .

Example

- A compound is analyzed in the lab an found to contain 8.44 g C, 1.3 g H, and 10.26 g O. What is the % composition of each element in the compound?

Another Example

- Now let's say that Mr. Romano finds a mystery white powder in the cafeteria. He asks us to analyze the substance and tell him what it is.
- We find that there is 211.0 g of C, 32.5 g H, and 256.5 g O. What is the % composition of the compound?

Law of _____ Proportions

- The **law of multiple proportions** states that when different _____ are formed by a combination of the same _____ , different masses of one element combine with the same relative mass of the other element in a _____ of small _____ .

Dalton's Atomic Theory

1. All matter is made up of atoms.
2. Atoms are indestructible and cannot be divided into smaller particles. (Atoms are indivisible.)
3. All atoms of one element are exactly alike, but are different from atoms of other elements.