John Dalton's Atomic Theory, Billiard Ball Model



Group 2: Jenny, Catherine, Younghan

<John Dalton>

-Was born in September, 1766 in England

-Became a teacher at the age of 12

-Color-blindness- "Daltonism"

-Interest in Meteorology

-1801: Published papers about gas

-1803: The first chart of atomic weights

-1808: Published *The New System of Chemical Philosophy*

-Died in 1844 (Suffering from several strokes)

<Atomic Theory>

1st Discovery : First understanding of Atoms

[Studying meteorology and gas] -> [A mechanical system composed of small individual particles] -> ["All matter is made up of small individual particles"] ->["Atomos" -> "Atoms"]

2nd Discovery : Elements have own weights + Billiard Ball Model

[Elements: Different types of atoms] -> [Each element has own weight] -> [Use different symbols for each element] -> [Imagined atom as tiny spheres (Billiard Ball Model)]

-> ["Table/Chart of Atomic Weights"]

3rd Discovery : Elements form compounds in whole number ratios

[Experimented with NO and O] -> [Results showed "Rations of small whole numbers]

-FINAL- 5 Assumptions (Errors)

1. All matter is made up of extremely small indivisible particles called atoms

-> Can be divide into smaller particles

2. Atoms of a given element are identical in mass and other properties

3. Different elements are composed of different atoms

-> (For #2 and 3) Some exceptions, such as isotopes

4. Atoms cannot be divided, created, not they be destroyed. They can simply be rearranged.

(This was already approved by Antoine Lavoisier in 1779, Law of Conservation of Mass)

5. Atoms of different elements form compounds in whole number ratios.

-> True

<Questions>

1. How did he find about atom?

2. Why weights of elements were important in John Dalton's theory?

3. What is Billiard Ball Model?

4. How did he experiment? What did he discover?

5. what are some errors involved in his 5 assumptions?

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