

Structure of the Atom

Fundamental Chemical Laws

Law of Definite Proportions

- different samples of a pure compound always contain its constituent elements in the same proportions by mass

Law of Multiple Proportions

- if two elements combine to form more than one compound, the masses of one element which combine with a fixed mass of the other element are in the ratio of small whole numbers

Law of Conservation of Mass

- matter can neither be created nor destroyed



Dalton's Atomic Theory of Matter

Dalton's Atomic Theory

1. Each element is composed of extremely small particles called atoms.



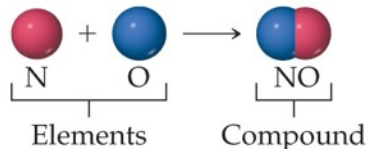
2. All atoms of a given element are identical, but the atoms of one element are different from the atoms of all other elements.



3. Atoms of one element cannot be changed into atoms of a different element by chemical reactions; atoms are neither created nor destroyed in chemical reactions.

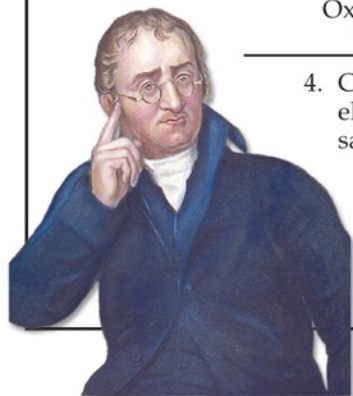


4. Compounds are formed when atoms of more than one element combine; a given compound always has the same relative number and kind of atoms.



1803

four postulates



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Dalton's Postulate #1

Dalton's Atomic Theory

1. Each element is composed of extremely small particles called atoms.



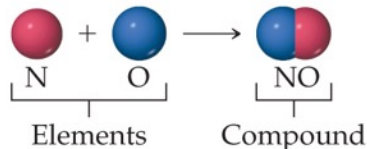
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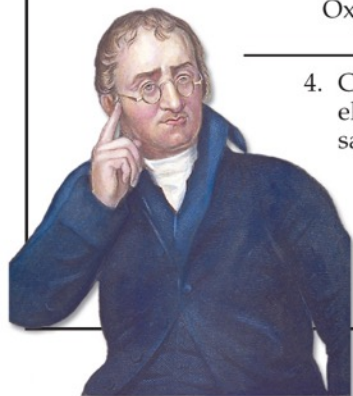
3. Atoms of one element cannot be changed into atoms of a different element by chemical reactions; atoms are neither created nor destroyed in chemical reactions.



4. Compounds are formed when atoms of more than one element combine; a given compound always has the same relative number and kind of atoms.



Each element is composed of extremely small particles called **atoms**.



Dalton's Postulate #2

Dalton's Atomic Theory

1. Each element is composed of extremely small particles called atoms.



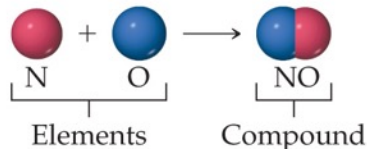
2. All atoms of a given element are identical, but the atoms of one element are different from the atoms of all other elements.



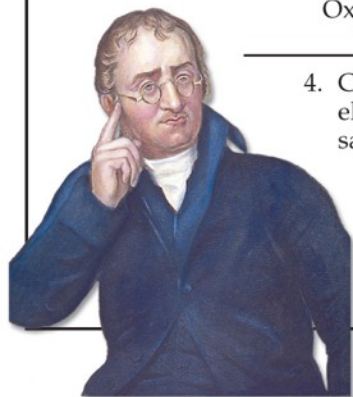
3. Atoms of one element cannot be changed into atoms of a different element by chemical reactions; atoms are neither created nor destroyed in chemical reactions.



4. Compounds are formed when atoms of more than one element combine; a given compound always has the same relative number and kind of atoms.



All atoms of a given element are identical to one another in mass and other properties, but the atoms of one element are different from the atoms of all other elements.



Dalton's Postulate #3

Dalton's Atomic Theory

1. Each element is composed of extremely small particles called atoms.



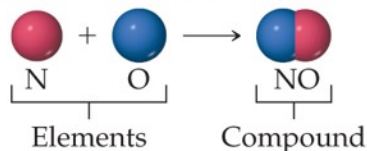
2. All atoms of a given element are identical, but the atoms of one element are different from the atoms of all other elements.



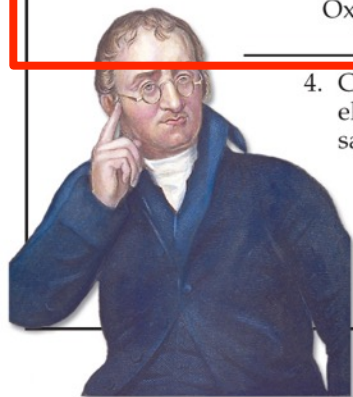
3. Atoms of one element cannot be changed into atoms of a different element by chemical reactions; atoms are neither created nor destroyed in chemical reactions.



4. Compounds are formed when atoms of more than one element combine; a given compound always has the same relative number and kind of atoms.



Atoms of an element are not changed into atoms of a different element by chemical reactions; atoms are neither created nor destroyed in chemical reactions.



incorporates law of conservation of mass

Dalton's Postulate #4

Dalton's Atomic Theory

1. Each element is composed of extremely small particles called atoms.



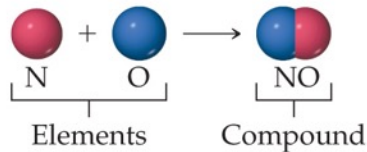
2. All atoms of a given element are identical, but the atoms of one element are different from the atoms of all other elements.



3. Atoms of one element cannot be changed into atoms of a different element by chemical reactions; atoms are neither created nor destroyed in chemical reactions.



4. Compounds are formed when atoms of more than one element combine; a given compound always has the same relative number and kind of atoms.



Compounds are formed when atoms of more than one element combine; a given compound always has the same relative number and kind of atoms.

incorporates laws of definite proportions
and multiple proportions

