



This image shows atoms of hydrogen in red combining in a 2:1 ratio with oxygen atoms in blue...this is an unusual color choice for oxygen that is usually red

Atomic theory proposed by John Dalton

Dalton's theory was based on the premise that the atoms of different elements could be distinguished by differences in their weights. He stated his theory in a lecture to the Royal Institution in 1803. The theory proposed a number of basic ideas:

- All matter is composed of atoms
- Atoms cannot be made or destroyed
- All atoms of the same element are identical
- Different elements have different types of atoms
- Chemical reactions occur when atoms are rearranged
- Specific compounds are formed from specific ratios of atoms of specific elements.

Using his theory, Dalton rationalized the various laws of chemical combination which were in existence at that time. However, he made a mistake in assuming that the simplest compound of two elements must be binary, formed from atoms of each element in a 1:1 ratio, and his system of atomic weights was not very accurate - he gave oxygen an atomic weight of seven instead of eight.

Despite these errors, Dalton's theory provided a logical explanation of concepts, and led the way into new fields of experimentation.