

PERIODIC CLASSIFICATION OF ELEMENTS

- Elements are classified on the basis of similarities in their properties.
- Döbereiner grouped the elements into triads and Newlands gave the Law of Octaves.
- Mendeléeiev arranged the elements in increasing order of their atomic masses and according to their chemical properties.
- Mendeléeiev even predicted the existence of some yet to be discovered elements on the basis of gaps in his Periodic Table.
- Anomalies in arrangement of elements based on increasing atomic mass could be removed when the elements were arranged in order of increasing atomic number, a fundamental property of the element discovered by Moseley.
- Elements in the Modern Periodic Table are arranged in 18 vertical columns called groups and 7 horizontal rows called periods.
- Elements thus arranged show periodicity of properties including atomic size, valency or combining capacity and metallic and non-metallic character.

Periodic Law: 'Properties of elements are a periodic function of their atomic number.'

Atomic number gives us the number of protons in the nucleus of an atom and this number increases by one in going from one element to the next. Elements, when arranged in order of increasing atomic number Z , lead us to the classification known as the Modern Periodic Table. Prediction of properties of elements could be made with more precision when elements were arranged on the basis of increasing atomic number.

Position of Elements in the Modern Periodic Table :

The Modern Periodic Table has 18 vertical columns known as 'groups' and 7 horizontal rows known as 'periods'. Let us see what decides the placing of an element in a certain group and period. All elements of a group contain same number of valence electrons, which justifies similar chemical properties.

The atomic radius decreases in moving from left to right along a period. This is due to an increase in nuclear charge which tends to pull the electrons closer to the nucleus and reduces the size of the atom.

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the elements because it is know that the oxides of metals are basic and that of non-metals are acidic in general.