

Lesson 39: Periodic Table Key Terms

Chemistry with Lab

1. **Mendeleev** – (born 1834— died 1907) Russian chemist who created the first valid periodic table of the elements in 1869
2. **Moseley** – (born 1887— died 1915) English physicist who used X-ray diffraction to show that each element has an atomic number. He arranged the elements by increasing atomic number, which was almost the same as Mendeleev's arrangement in order of increasing atomic weight, but differs slightly. These differences account for the few discrepancies inherent in the Mendeleev system. He was killed in World War I.
3. **Periodic law** – The principle that the properties of the elements recur periodically as their atomic numbers increase.
4. **Family** – A vertical column in the periodic table of elements.
5. **Group** – A vertical column in the periodic table of elements.
6. **Period** – A sequence of elements arranged in order of increasing atomic number and forming one of the horizontal rows in the periodic table.
7. **Electron distribution** – A function which gives the number of electrons per unit volume of phase space.
8. **Valence electron** – An electron in an outer shell of an atom that can participate in forming chemical bonds with other atoms.
9. **Noble gas distribution** – A short hand of electron distribution. Constructed by putting the symbol of the noble gas in the period before the element in brackets and continuing the electron configuration from where the noble gas left off.
10. **Energy level** – One of the allowed values of the internal energy of an isolated physical system.
11. **Stable** – Not easily decomposed or otherwise modified chemically.
12. **Metalloid** – An element which exhibits the external characteristics of a metal but behaves chemically both as a metal and a nonmetal.
13. **Semimetal** – Another name for an element which exhibits the external characteristics of a metal but behaves chemically as a metal and a nonmetal.
14. **Atomic radius** – Half the distance between the nuclei of two like atoms that are covalently bonded.
15. **Electron affinity** – The work needed in removing an electron from a negative ion, thus restoring the neutrality of an atom or molecule.

Lesson 39: Periodic Table Key Terms (cont.)

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16. **Ionization energy** – The amount of energy needed to remove an electron from a given kind of atom or molecule to an infinite distance.
17. **Electron configuration** – The orbital and spin arrangement of an atom's electrons, specifying the quantum numbers of the atom's electrons in a given state.