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## The Periodic Table

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*The table is the dwelling of every element,  
Metals, non-metals and the in-betweens!  
It's based on Z - the number of protons,  
Found in the nucleus of every atom.*

*The habitat is organized into columns and rows,  
Sheltering matters from which everything grows.  
Rows into periods and columns into groups,  
Mendeleev boldly left voids for the unknowns.*

*The table of elements into columns and rows,  
The aid of learning that plays numerous roles:  
Trends, predictions, confirmations, explanations,  
Discoveries and inventions to name a few!*

*Metals on the left, non-metals on the right,  
Marked by a partition or a zig zag divide.*

*Metals far exceed non-metals in numbers and shine,  
As the non-metals rejoice thinking of love and bind!*

*Semi-metals<sup>1</sup> lies close to the zig zag divide,  
As they resemble metals and non-metals alike,  
Examples being zinc and tin but not the fluoride!*

*Sodium, calcium, potassium, magnesium, barium,  
Strontium, cesium and radium are examples of metals.  
Fluorine, chlorine, oxygen, nitrogen, bromine,  
Phosphorus and sulfur provide the same for non-metals.*

*Lithium, sodium, potassium, rubidium,  
Cesium and francium together form IA elements,  
As each has a single electron in the outer shell!  
Fluorine, chlorine, bromine, iodine,  
And astatine belong to group VIIA elements,  
All having 7 electrons in the valence shell!*

*Helium, neon, argon, krypton, xenon and radon  
Are called the inert or the noble gases,  
As they are reluctant to pair or bind,  
Being contented from within or acutely shy,  
Born with a stable electron configuration!*

*Transition elements housed in the central valley,  
Are ever ready to show off with a split personality<sup>2</sup>!  
They can act as catalysts, form coloured ions  
And 'coordinate covalent bonds'<sup>3</sup> with ligands<sup>4</sup>!  
They have an incompletely filled d sub shell.  
Examples being cobalt, mercury, copper and nickel.*

*Metals are malleable, ductile and generally shiny,  
And good conductors of heat and electricity,  
That can be explained in terms of the unique attribute,  
Created by the closed-packed lattice of positive ions,  
Submerged in a sea of 'free' electrons!*

*Metals form positive ions by losing electrons,  
Non-metals form negative ions by gaining electrons.  
Thus metals pair with non-metals forming the ionic bond,  
The strong attraction between the cations and the anions!*

*Non-metals can also bind with other non-metals  
By sharing electrons either equally or unequally!*

*Many trends are found in the Periodic Table,  
Including metallic character, atomic radius,  
Basic nature of the oxides, the electron affinity,  
Ionization energy and the electronegativity!*

*Metallic character increases down the group,  
And decreases from left to right across a period.  
You can also find a similar trend for the atomic radius,  
Ionization energy and the basic nature of the oxides!*

*The acid nature of the oxides decreases down the group,  
And increases from left to right across a period,  
As it would be true for the electronegativity,  
Which is a measure of the electron withdrawing capacity.*

*With the possible exception of the unstable francium,  
Cesium is the most electropositive element,  
And fluorine is the most electronegative one!  
Thus Cs and F bind forming the most ionic bond.*

*Lanthanides and actinides have incompletely f sub shell,  
Examples being cerium, holmium, uranium and plutonium.*

*The table of elements into columns and rows,  
The aid of learning that performs numerous roles!  
Rows into periods and columns into groups,  
Mendeleyev boldly left voids for the unknowns.*

*The children of Adam created in the best of the mould,  
Achieving the heights, opening the mind, nourishing the soul,  
As they discover and invent but not reject and deny!*

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<sup>1</sup> Also called in-between elements, they behave like metals in some respects and like non-metals in some other respects; <sup>2</sup> multiple oxidation states; <sup>3</sup> an electron-shared bond in which both the electrons are supplied by one atom; <sup>4</sup> an atom, ion or a molecule that has one or more lone pairs of electrons available for the formation of a coordinate covalent bond with a metal atom or ion.