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Science Today

How to Read
The Schemata of the Elements

Charles William Johnson

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SCIENCE **TODAY**
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*Dedicated to **Bo***

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How to Read
The Schemata of the Elements

Introduction

The Mendeleev-based periodic table of the elements that is currently in use, presents certain limitations in format. The conventional periodic table impedes viewing certain patterns within the behavior of the elements and their atoms. The traditional periodic table presents a dismembered format in its layout, as it is interrupted in the Lanthanide Series and the Actinide Series, which remain outside the main body of the table. When these two series are brought into the "long table", enormous gaps open up among the representative elements, thus denying any possibility of visualizing patterns among the elements on the conventional periodic table.

In effect, the numerical, progressive ordering of the atomic number of the elements is thereby interrupted. The very defining characteristics of the elements and their atoms, such as periodicity, are denied by the dismembered format of the conventional periodic table.

In order to overcome these shortcomings of the conventional periodic table, we are presenting a rearrangement of the elements in a compact schematic design. We refer to the format's design as the ***schema.*** The title that we have given our study is that of ***The Schemata of the Periodic Table of the Elements.*** In time, the title may be shortened to simply, ***The Schemata of the Elements.*** The title reflects the fact that the schemata treat more aspects and characteristics of the elements, than simply that of their periodicity***. In this sense,*** the schemata move beyond the periodic table.

We shall offer a summary view of how to read the ***schemata.*** As may be readily observed, the ***schema*** design maintains smaller gaps among the elements, which now lie between the transition elements. The defining feature of the schemata is that the progressive sequential numbering of the atomic numbers is now maintained. Patterns among the representative elements are now visible, as well as original patterns between these and the transition elements. These patterns are not available on the conventional table.

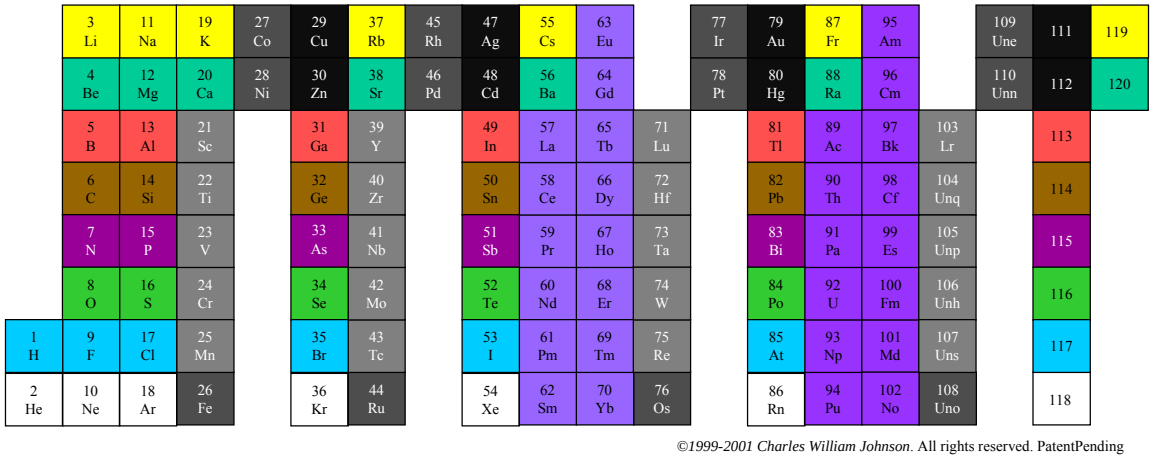
Furthermore, the schematic design allows for making projections of the elements. The schemata are projected to ***166-schema*** and ***216-schema***.formats. However, these schemata are not treated in this brief how-to-read essay. The reader is encouraged to consult the more extensive volumes of the different schemata in this regard. In order to examine the original patterns that appear within the ***schemata***, it is recommended that the complete study be obtained for viewing.

The schema, as we shall observe in the next slide, is based upon a series of squares that may be assigned different background colors, and have specific data imprinted upon the colors. This commonly employed visual feature becomes much more effective in creating a periodic table that may serve as a visual aid in either teaching and or learning about the behavior of the elements and their atoms.

The fact that the schema maintains the sequential numbering order of the atomic numbers of the elements, is what shall define the possibility of producing color-coded, visual images upon the schemata.

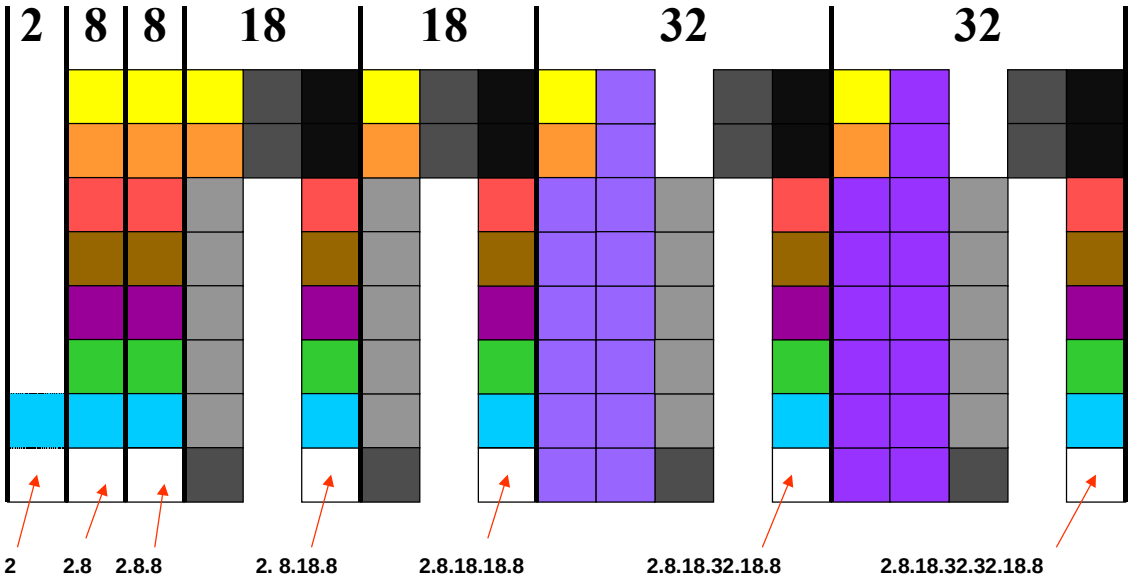
The Earth/matriX Periodic Table of the Elements

The Schemata of the Elements



Alkali Metals
Alkaline Earth Metals
Boron Family
Carbon Family
Nitrogen Family
Oxygen Family
Hydrogen / The Halogens
The Noble Gases
First Transition Metals
Second Transition Metals
Third Transition Metals
Lanthanide/Actinide Series

Numbers Corresponding to the Periods:
Linear Pattern **2.8.8.18.18.32.32**

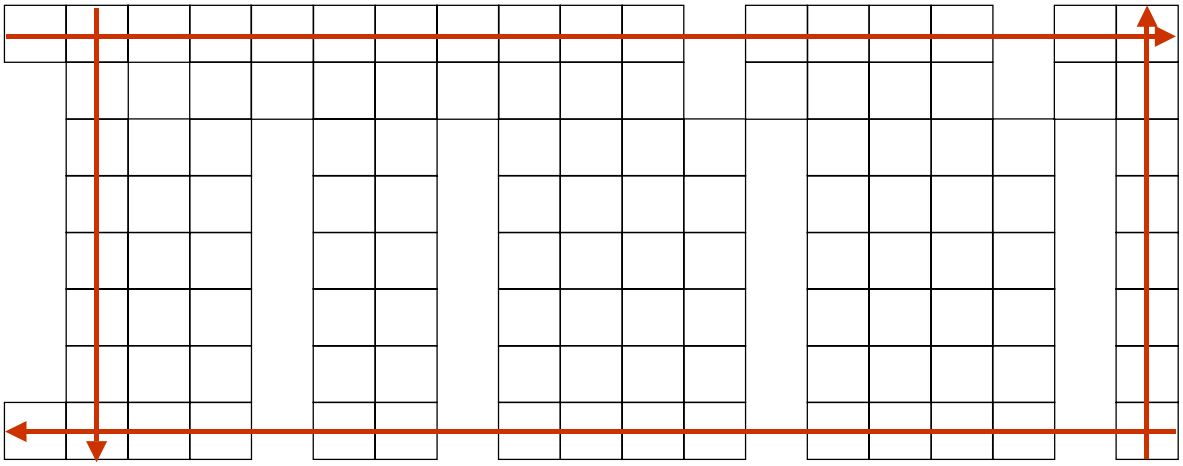


Electron Configuration of the Last Element for Each Period

As may be observed in this slide, the schema presents a grid-like system of squares, whereby each one shall represent a specific element. The schema is based upon a placement of the elements according to a distinctive theoretical interpretation of their electron configuration. Physicists generally perceive "irregularities" in the electron configuration of the atoms. These so-called irregularities are set aside in the design of the schema. The distinctive format of the schema visualizes what the electron count may have become had the irregularities not occurred. The visual ordering of the schema may be presented in different ways, as we shall observe below, whereby the rows and columns of squares of the schema may be scrolled or wrapped around one another in different directions (vertically or horizontally).

An Incremental/Decremental Reading: Horizontally and Vertically

The rows of elements may be scrolled vertically and horizontally, thereby allowing different relationships of elements to be visualized.

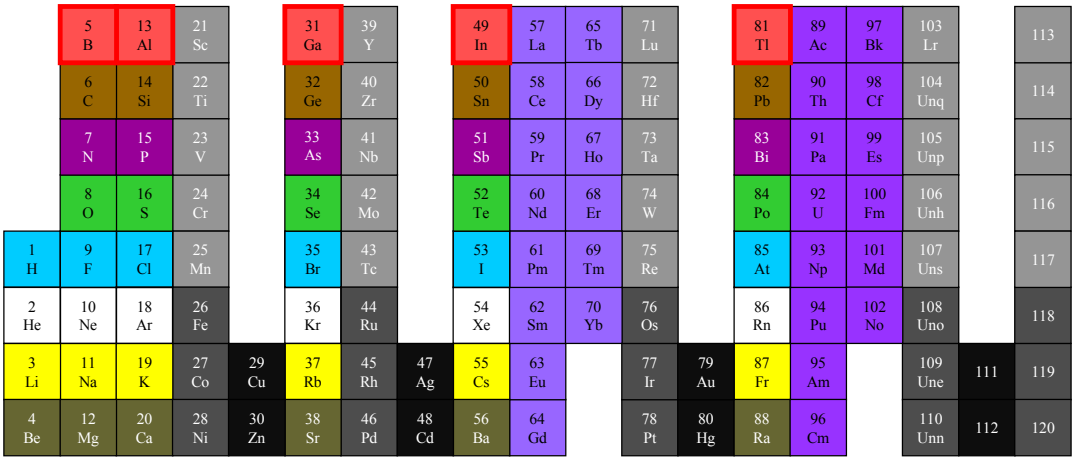


The schema may be read from left-to-right and from top-to-bottom in a progressive, incremental numerical ordering. The inverse directions in reading the schema would represent a decremental reading of the schema. The dynamics of the reading shall be in relationship to the creativity of each individual reader. Given the fact that all elements are relational to one another, the initial incremental/decremental ordering of the atomic numbers simply states the initial method for visualizing the elements on the schema.

As we shall see in many of the schemata developed by us, one may draw an infinite number of original relationships among the elements; many of which have not been treated in the literature to date. These new relationships obtain from the schema design, whereas the dismembered layout of the traditional periodic table disallows such relationships.

The Earth/matriX Periodic Table of the Elements

A Distinct Vertical Scroll of the Horizontal Row of Elements



120 Elements

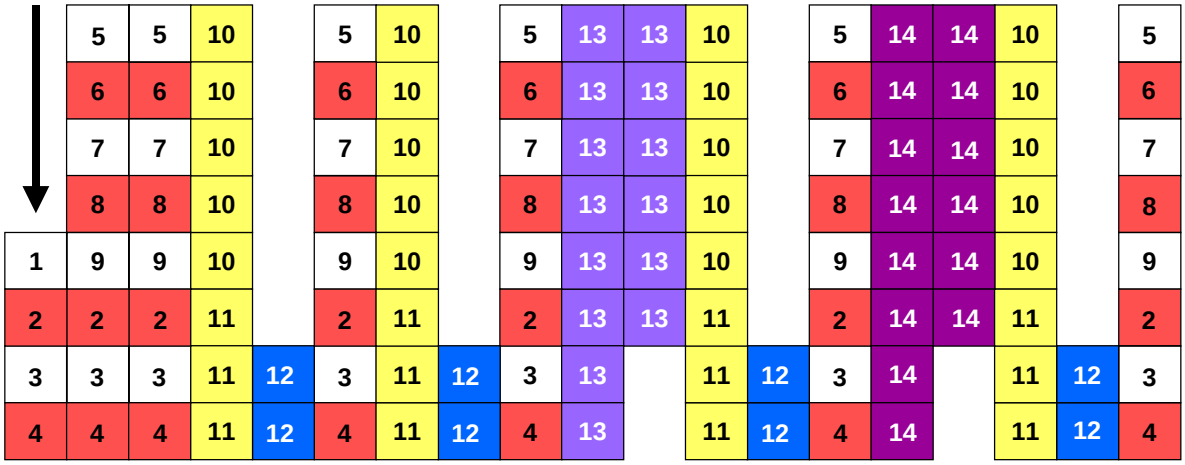
The previous slide presents the 120-element schema, based upon the atomic numbers of the elements, presented according to the theoretically established electron configuration cited above. The gaps among the transitional elements are much smaller than the gaps among the representational elements on the conventional Mendeleev-based table.

The *schema* follows the progression of atomic numbers of the elements from left-to-right and from top-to-bottom. The fact that the schema now respects the progressive numerical order, however, makes it possible to present the schemata in many different directions, for ease of reading in other languages than English. We have developed the schemata to be presented in languages such as Arabic and Hebrew (in a right-to-left horizontal format), and for Chinese (in a top-to-bottom vertical format).

The Mendeleev-based table supposedly follows a progressive numbering system (*aufbau*), but then contradicts that proposition by offering either a fragmented or over-extended placement of the elements' atomic numbers. The conventional periodic table does not maintain the *aufbau* design, since the inner transition elements lie outside the main body of the elements. Unlike the Mendeleev-based periodic table, as may be observed in the present slide, the ***schemata*** actually maintain the visualization of the sequential, progressive numbering of the atoms, no longer contradicting the progressive *aufbau* numbering system.

A Proposal for a Notation of Groups and Families

1 = Hydrogen
2 = The Inert Gases
3 = Alkali Earth Metals
4 = Alkaline Earth Metals
5 = Boron Family
6 = Carbon Family
7 = Nitrogen Family
8 = Oxygen Family
9 = The Halogens
10 = First Transition Metals
11 = Second Transition Metals
12 = Third Transition Metals
13 = Lanthanide Series
14 = Actinide Series

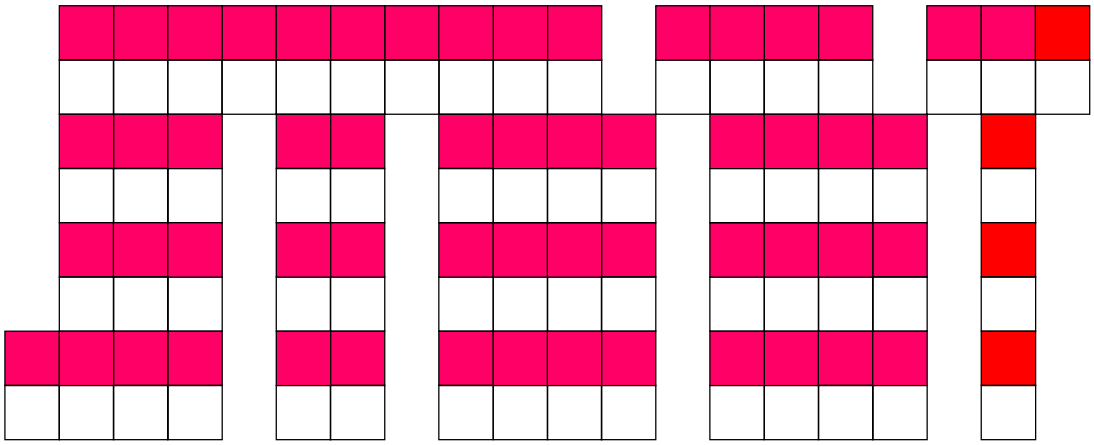


The distinctive arrangement of the elements by their atomic number within the schema creates a ***proposal for notation*** of the families and groups of the elements, as may be viewed in the previous slide.

In this schema, the sequential numerical ordering of the families and groups reflects fourteen different series of related elements. A specific family or group shares the same number on the schema. The sequential, progressive ordering would be read from top to bottom, beginning on the left-hand side of the schema at the first square with the number one in it, which represents the element Hydrogen.

By arranging the elements in this manner on the schema, something quite significant appears. The ***proportional*** spatial representation of ***periodicity*** becomes visible within the schema. On the conventional periodic table, there is no visual representation of the periodicity among the elements. On the schemata, the periodicity of the elements may now be visualized in reading the schema from left-to-right. For example, note the group represented by Lithium (number 3), reading all of the number 'threes' from left to right.

Stable Isotopes
Odd Numbers/Low Numbers and Even Numbers/High Numbers



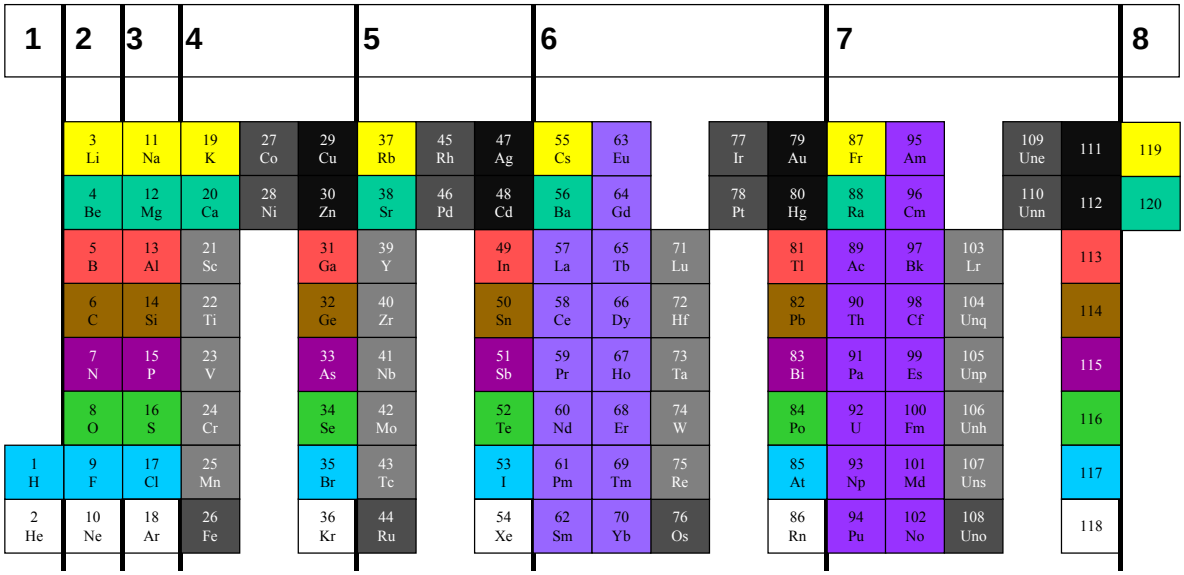
120-Element Table
The Noble Gases: Bottom Row Scroll

One of the first patterns that comes into view on the schema concerns the ordering of the ***odd/even*** numbers of the atomic number of the elements. This pattern is extremely significant in regards to the pattern for stable isotopes. Almost any data that are placed upon the schema concerning the characteristics and behavior of the elements and their corresponding atoms shall reveal a specific color-coded pattern. The schema accommodates old patterns, as well as producing new, original ones, revealing unsuspected ***symmetries*** among the elements.

The visual, color-coded patterns derived from the schema's design and spatial placement of the elements may assist students in remembering the innumerable relationships and infinite amount of data. The pattern imaging promotes recall of the schema. Furthermore, the visual, color-coded patterns lay the groundwork for recuperating the predictability within the behavior of the elements. This in turn allows for making projections upon the schema's design.

Although we are presenting the 120-element schema in here, one may begin to note how the schema's very layout suggests an extrapolation of the elements towards the right-hand side of the schema. In other words, the 120-element pattern suggests the projection of that same pattern towards the166-element and 216-element schemata.

THE PERIODS: SCHEMA-120

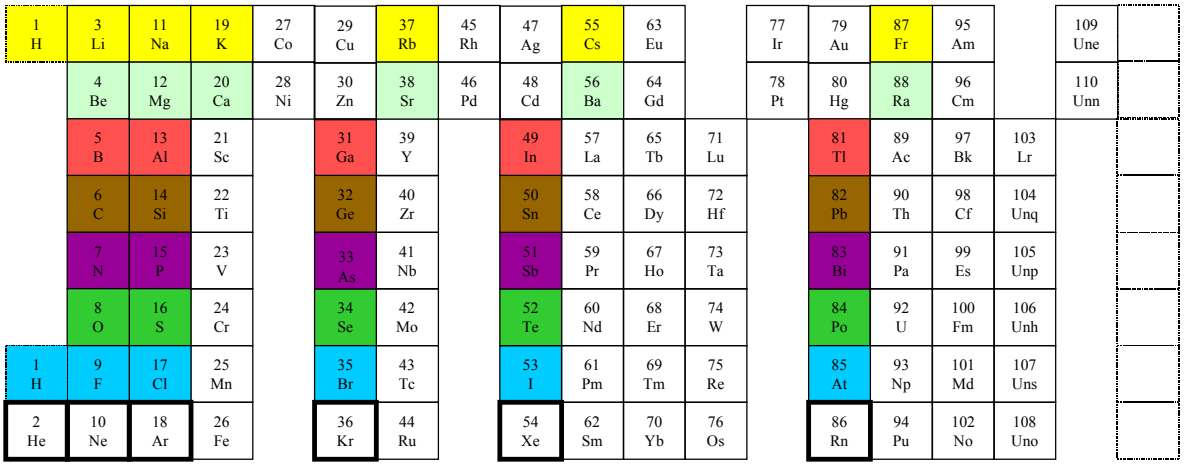


As we mentioned earlier, the periodicity of the elements may be visualized on the schema's design. The periodicity of the elements concerns the manner in which the shells and sub-shells of the atoms are filled by electrons. The periodicity of the electron configuration constitutes, as we mentioned earlier, the basis for the ordering of the placement of the elements on the schema. The schematic placement of the elements within the schemata allows for dividing the periods along comprehensible lines that restructure the placement of the families and groups of the elements.

The advantage of the schema, as against the Mendeleev-based periodic table, is that the periodicity now reflects a proportional spacing on a time-line, reading incrementally from left-to-right. As referenced earlier, the concept of periodicity is thereby spatially expressed on the schema, as may be observed in the above schema. Such an elementary pattern is simply unavailable on the conventional periodic table now in use today.

This spatial proportionately, as we shall observe in many of the schemata presented by us, shall be reason alone to establish the potential learning and teaching value of ***The Schemata of the Elements***. However, as we shall observe throughout our studies, the reasons for viewing the potential of the schemata are as many as there are relationships that exist among the elements and their atoms. The reason being is that there may be as many schemata as such minute relationships exist in and of themselves.

The Primary Pattern:
The Representative Elements



The Noble Gases: Bottom Row Scroll

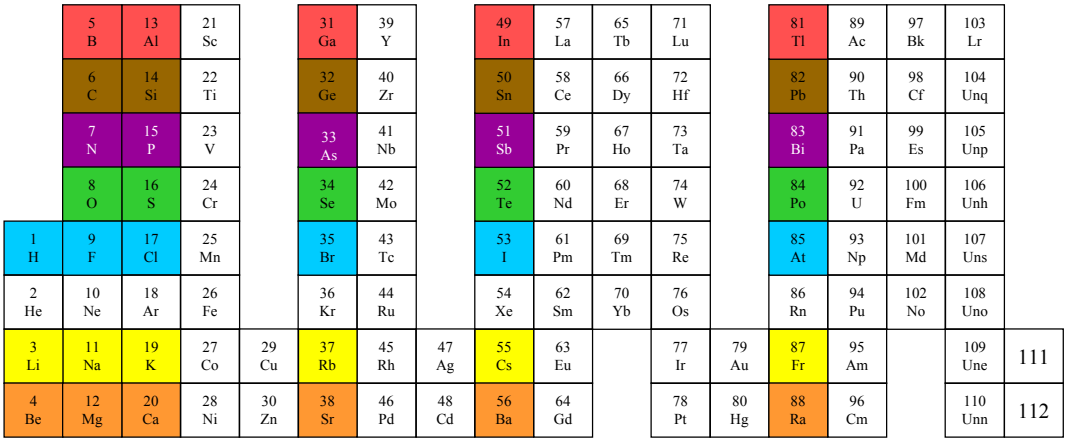
The elements may now be ordered on a periodic spacing and proportionately visualized according to the different ***sectors***.

The pattern according to the sectors (**2.8.8.18.18.32.32.2**) reflects the number of elements per sector on the schema.

This ordering now allows us to effect projections of the sequential/incremental placement of the possible extension of the schema and the elements that may follow within the schema's design format.

The representational elements, whose squares are filled in on the previous slide, reflect the proportional spacing obtained from the schema's design. In this same manner, the Transition and Inner Transition elements are thus effectively isolated from the representational elements, while also presenting their own groupings. And, as we shall observe throughout the different schemata, the so-called irregular elements (the transition and inner transition elements) present quite regular patterns once viewed upon the schema design.

The Primary Pattern: Representational Elements



The Alkaline Earth Metals: Bottom Row Scroll

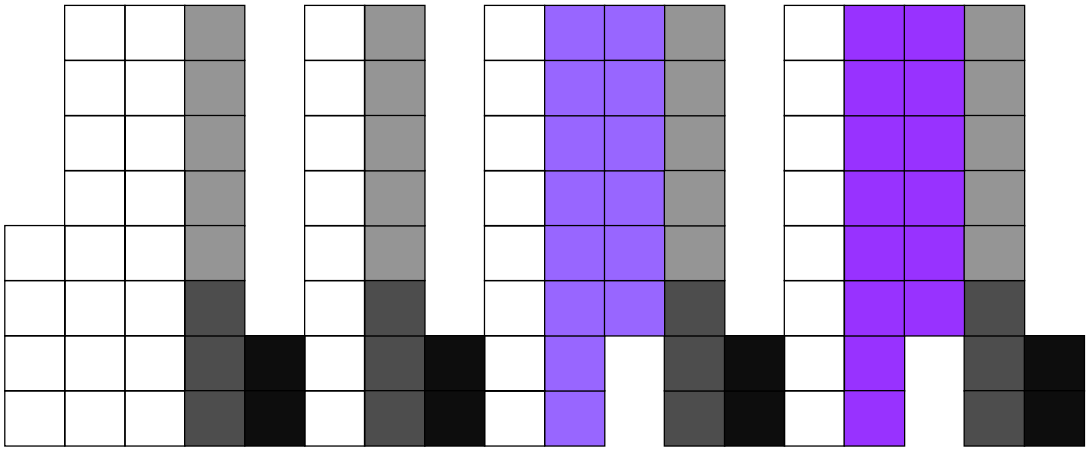
A reading of the primary pattern, or the representative elements, would be effected as illustrated in the schema above. Obviously, one can skip around and analyze the relationships in any order of the incremental/decremental numbering of the atoms. But, in this manner, the representational elements may be isolated from the rest of the elements on the schema, and thereby specific patterns may be visualized for each family or group.

However, the particular view of the representational elements allows us to contemplate the manner in which the schema may be read from a general, overall perspective or, from a very specific, detailed perspective. This view emphasizes the manner in which particular relationships among the elements may be isolated and highlighted in a search for imaging patterns of symmetry on the schema's design.

As we have seen, the different families, groups or simply the characteristics of the elements may be assigned specific colors, and with that visual aids may be created, drawing attention to specific relationships among the elements and their atoms.

The Tertiary Pattern and Inner Transition Elements

So-called Irregularities



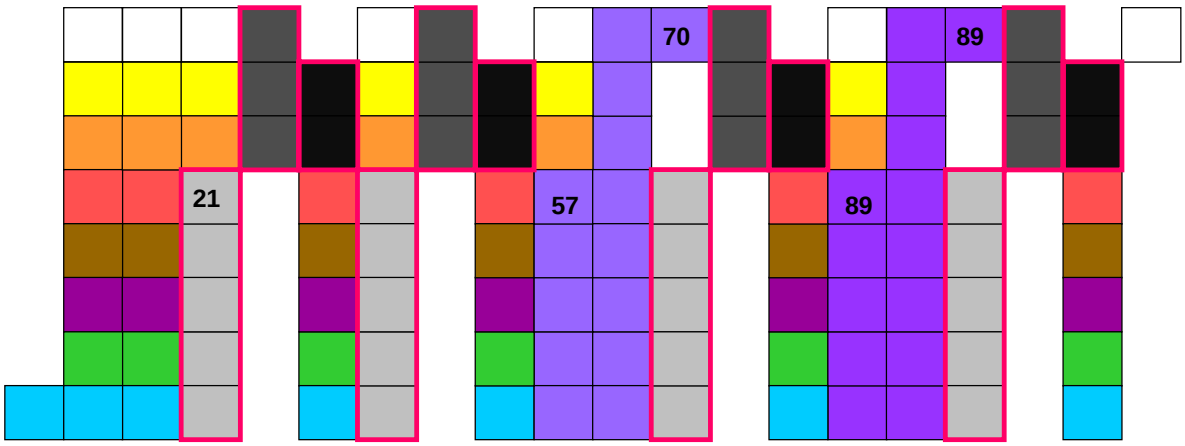
The transition elements and the inner transition elements may thereby be isolated from the representative elements. The *representative elements* are known as the ***primary*** pattern; the *transition elements* are known as the ***secondary*** pattern; and, the *inner transition elements* (The Lanthanide and the Actinide Series) are known as the ***tertiary*** pattern.

Physicists and chemists often refer to the patterns of the secondary and tertiary elements as "irregular" symmetries. However, as may be viewed in the above schema, the pattern reflects quite a predictable pattern of symmetry. This point is significant. A reading of the periodic table of the elements as of the schemata shall correct our view of matter-energy. What has often been conceived as being random-like behavior in matter-energy, may now be conceived for what it is, something quite symmetrical, regular and therefore possibly predictable.

According to the patterns derived from the schemata, the parameters within Nature appear to be well defined, and nothing seems to have been left to chance within the existence of *matter-energy.* The theoretical problem has been, rather, that of viewing matter-energy as it exists, instead of conceiving of it may be from our ill-defined and confused defining categories and parameters. Consider the fact that, once we begin to visualize the behavior of the elements and their atoms on the schemata, word-concepts such as "regular/irregular" become superfluous, almost irrelevant.

The Perceived Regular and Irregular Patterns

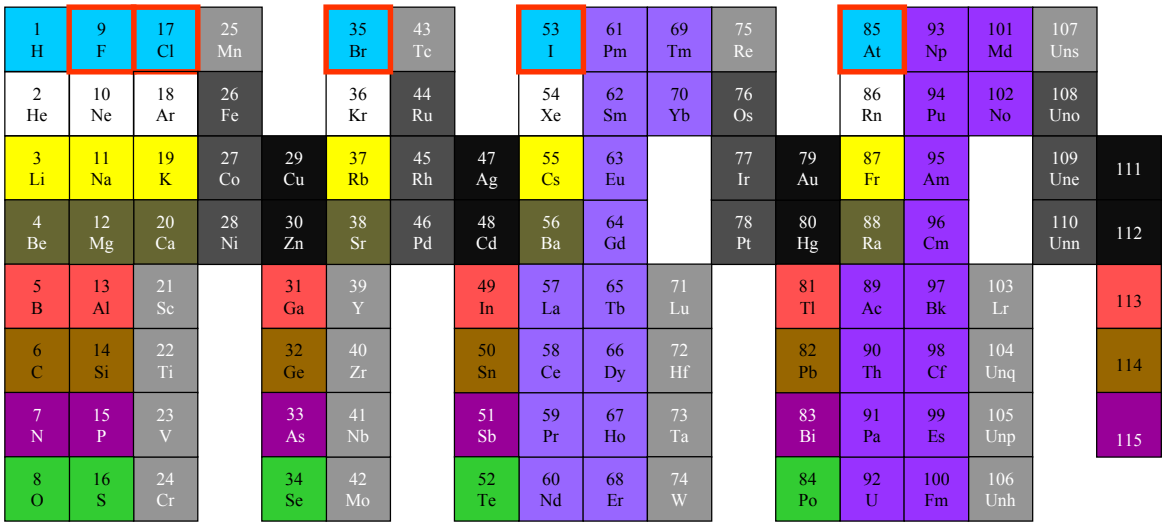
The placement reveals the nature of the irregular patterns, which begin with element 21, the transition metals, and then with the lanthanoid series 57-70, and the actibnoid series 89-102



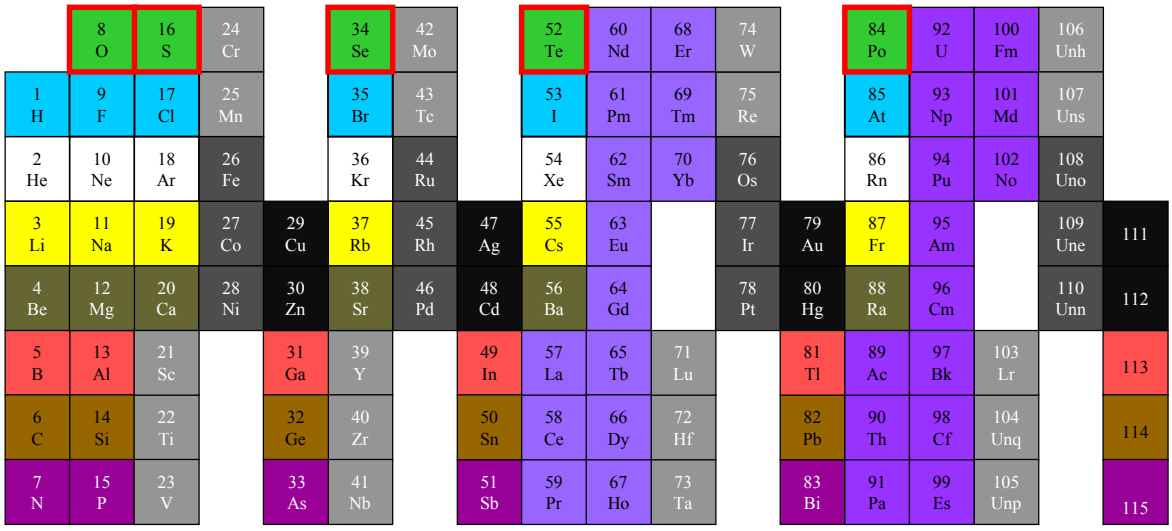
Much debate and disagreement have surrounded the placement of ***elements 71 and 103*** on the traditional periodic table of the elements. The schema allows us to conceptualize and confirm the placement of elements numbers 71 and 103. Generally, on the conventional periodic table of the elements, element 71 is placed within the Lanthanide Series, and element 103 is placed within the Actinide Series. According to the schema, the placement of these elements lies outside of the tertiary pattern in a most decisive manner, as may be viewed in the previous slide.

The schema's design in this manner clarifies such debatable points concerning the arrangement of the elements 71 and 103, showing them to be members of the transition elements. In this manner, we have come to discover the fact that the schema's design is ***self-correcting***. Often, we have recorded data onto the schema, and the visual pattern that obtains makes little sense, or appears in an asymmetrical manner. This causes us to review the data, and we find, generally, that we have made a mistake and, by correcting our mistake, the proper data transferred onto the schema produces a pattern of symmetry. The pattern is generally quite symmetrical and much more logical. It were as though the schema would not allow us to err; by identifying such breaks in the symmetry of patterns, the schema becomes self-correcting. Any violation of its design is quickly perceived within the pattern being traced out on its squares.

Hydrogen and the Halogens: Top Raw Scroll



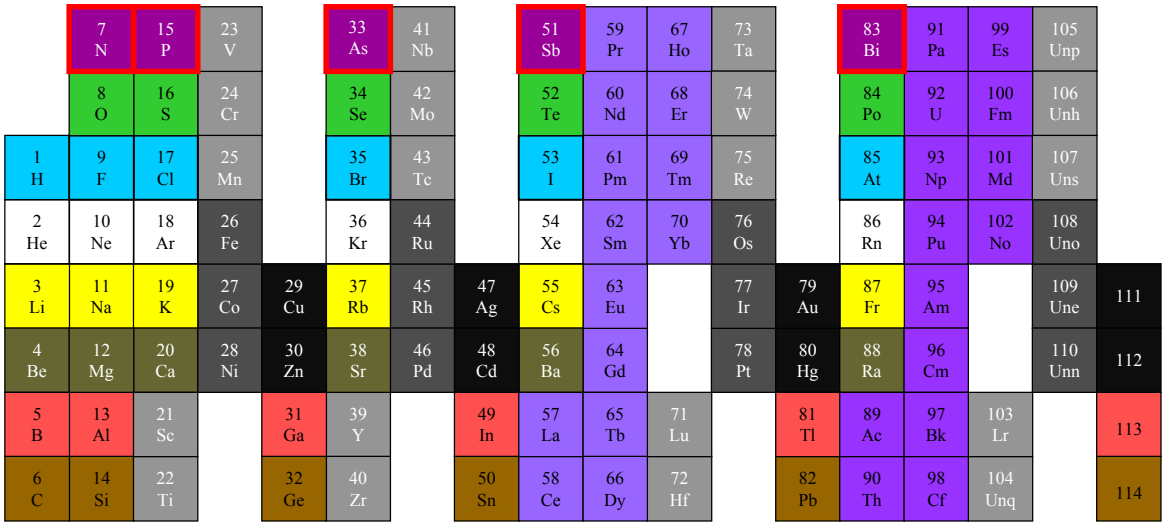
The Oxygen Family: Bottom Row Scroll



The Oxygen Family: Top Row Scroll

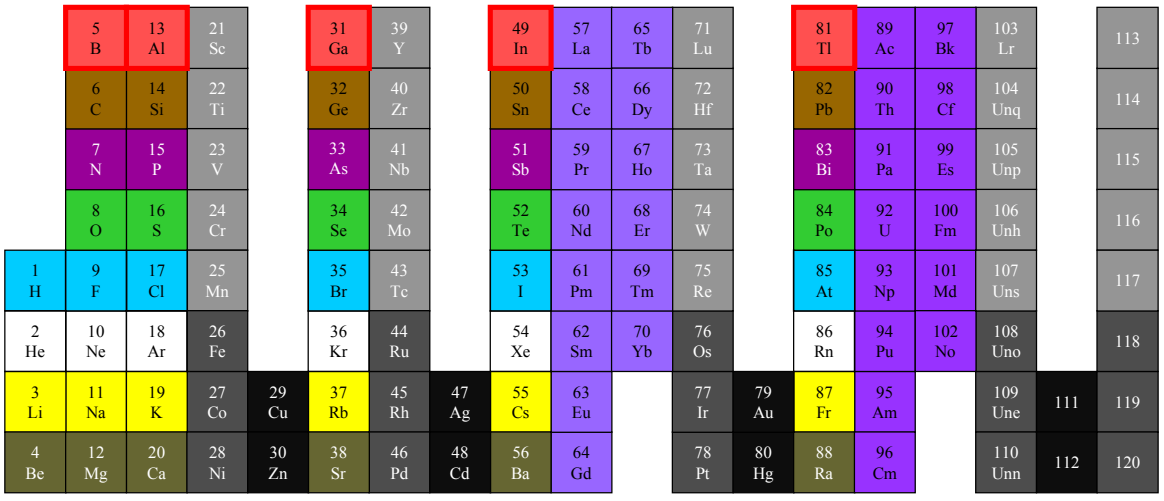
The Nitrogen Family: Bottom Row Scroll

The Nitrogen Family:Top Row Scroll



The Carbon Family: Bottom Row Scroll

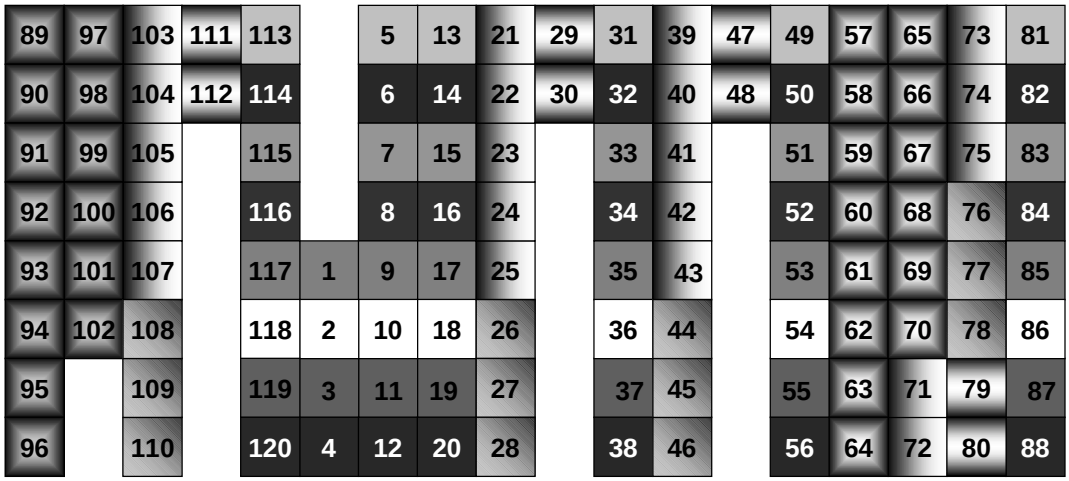
The Carbon Family: Bottom Row Scroll



The Boron Family: Bottom Row Scroll

Scrolling the Schemata

The Principal Periodic Table
All Patterns Visibly Structured: Horizontal Scrolling



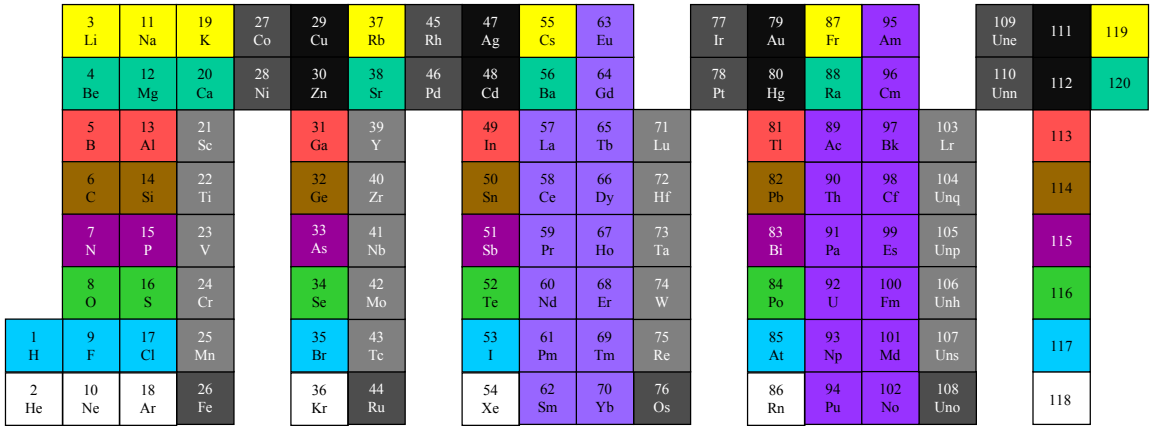
The schema may be scrolled either vertically by ***rows*** or, horizontally by ***columns***, in search of specific, color-coded images that produce visual patterns.

The previous slide presents an horizontal scroll of the columns of the elements. In this manner, one may relate the super-heavy elements to the representative elements with the elements at the beginning of the schema. An infinite number of relational options become available. In this manner, a particular scroll may not reveal any specific pattern; but, a distinct scroll may afford the imaging of a pattern that would otherwise go unrecognized. The schema, therefore, represents a dynamic way for searching for patterns.

In this sense, the schemata contradict our common, everyday view of the periodic table of the elements. We often think that only one periodic table exists; that there can only exist one single, correct periodic table of the elements. When, in fact, what exists is the possibility of presenting the elements and their atoms in as many formats and relationships as exist within their very nature. The vertical and horizontal scrolls of the schemata reflect the dynamic nature of the behavior of the elements and their atoms, thereby revealing thousands upon thousands of images of the relationships among the elements. In fact, from our studies, we suspect that the patterns of symmetry within the elements are infinite, as infinite is the existence of matter-energy that are beginning to know in its vast complexity.

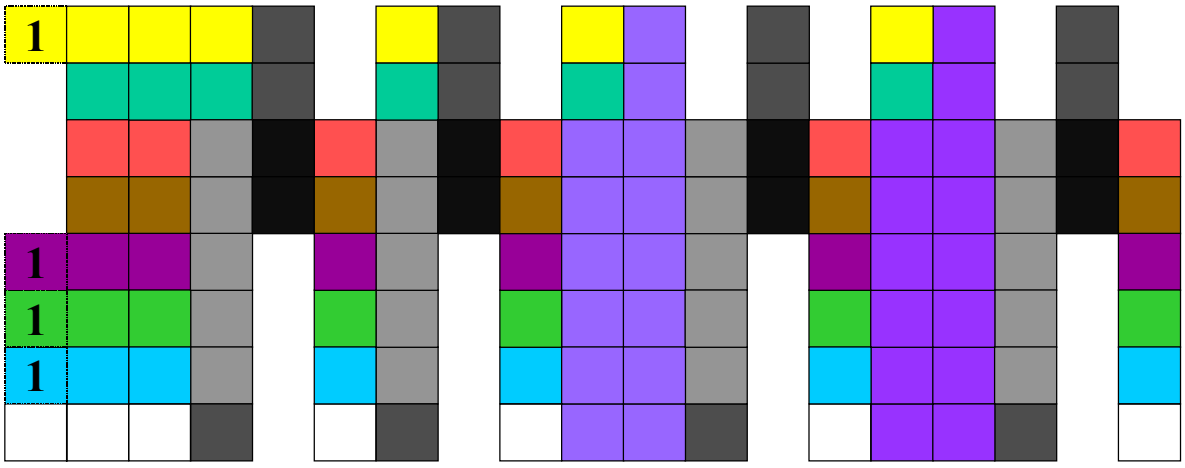
The Earth/matriX Periodic Table of the Elements

The Schemata of the Elements



Alkali Metals
Alkaline Earth Metals
Boron Family
Carbon Family
Nitrogen Family
Oxygen Family
Hydrogen / The Halogens
The Noble Gases
First Transition Metals
Second Transition Metals
Third Transition Metals
Lanthanide/Actinide Series

Hydrogen in Relation to the Different Groups & Families

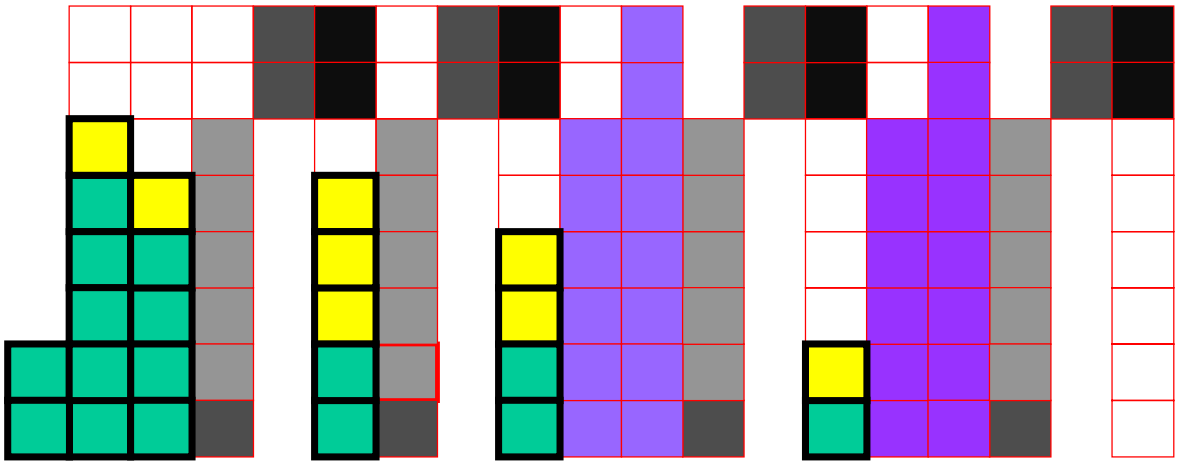


Hydrogen may be linked to the elements of Flourine, Oxygen and Nitrogen. Mendeleev charts today link it to Lithium, or to Flourine, and some link it to both in presenting the periodic table. We shall illustrate it in relation to either depending on the different aspects and patterns established.

A Few Color-Coded Patterns on

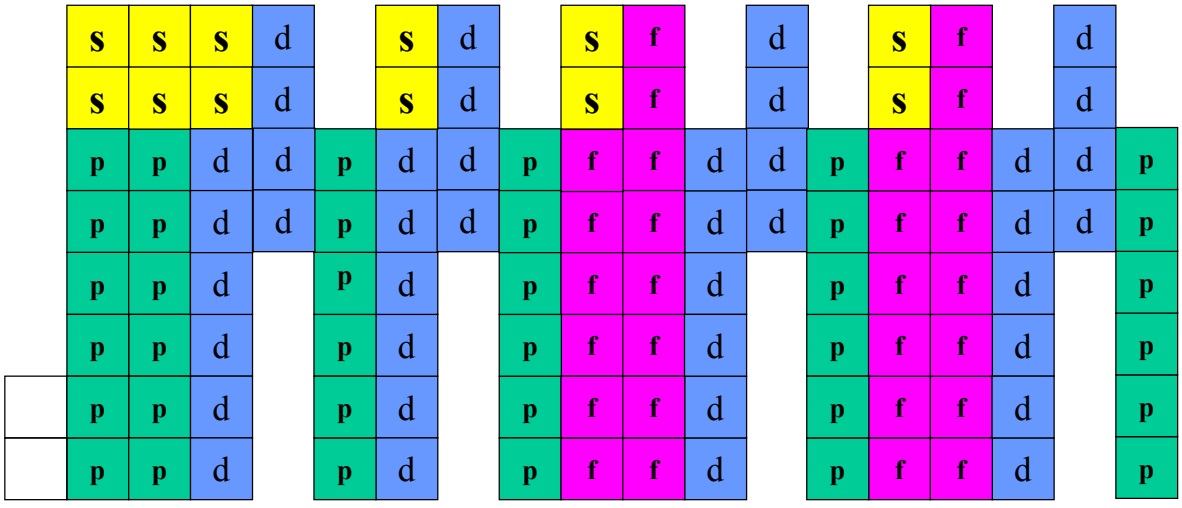
The Schemata of the Elements

Patterns of Transition and Inner Transition Elements in Relation to Metals, Metalloids and Non-Metals

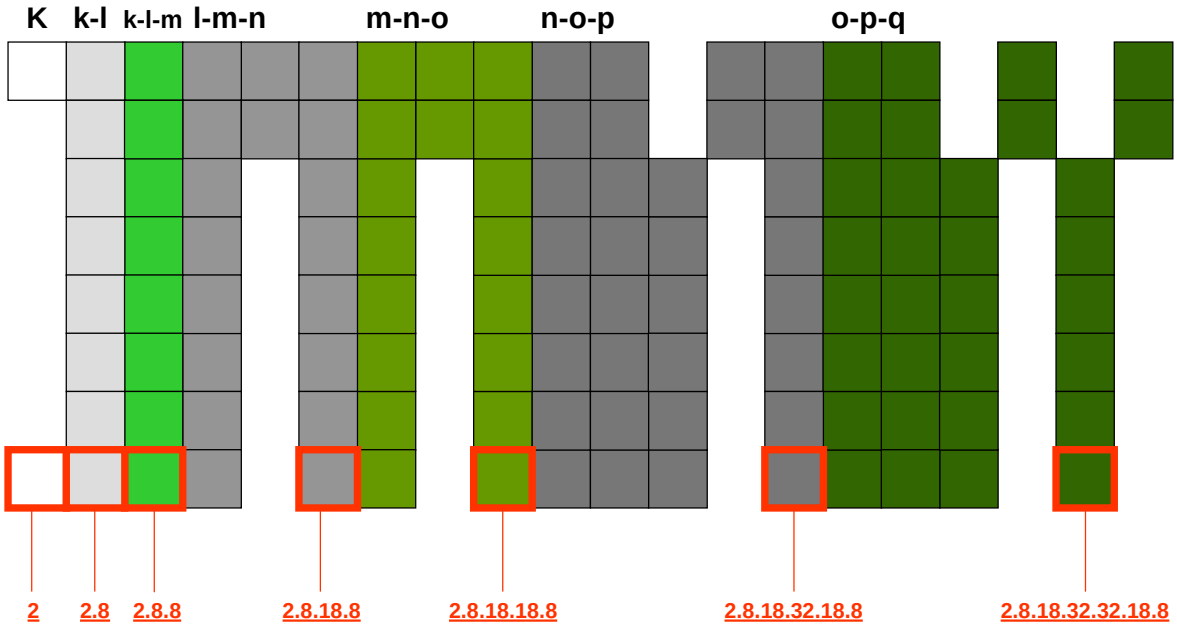


Orbitals Occupied by Valence Electrons

Orbitals s p d f



The Pattern of Shells



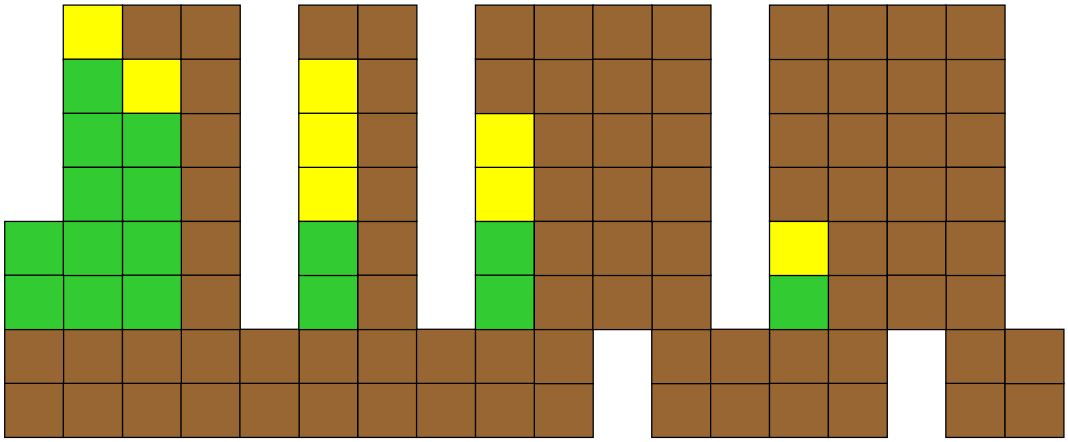
Electron configuration by contemporary Periodic Table Listings Outermost Electron Shell/Number

s^1	s^1	s^1	s^1	s^2	s^1	s^1	s^2	s^1	s^1	s^2		s^2	s^1	s^1	s^2		s^2
	s^2	s^2	s^2	s^2	s^2	s^2	d^{10}	s^2	s^2	s^2		s^2	s^2	s^2	s^2		s^2
	p^1	p^1	s^2		p^1	s^2		p^1	s^2	s^2	s^2		p^1	s^2	s^2	s^2	
	p^2	p^2	s^2		p^2	s^2		p^2	s^2	s^2	s^2		p^2	s^2	s^2	s^2	
	p^3	p^3	s^2		p^3	s^2		p^3	s^2	s^2	s^2		p^3	s^2	s^2	s^2	
	p^4	p^4	s^2		p^4	s^2		p^4	s^2	s^2	s^2		p^4	**92**	s^2	s^2	
	p^5	p^5	s^2		p^5	s^2		p^5	s^2	s^2	s^2		p^5	s^2	s^2	s^2	
	p^6	p^6	s^2		p^6	s^2		p^6	s^2	s^2	s^2		p^6	s^2	s^2	s^2	

Element 46 with is d^{10} termination stand squarely in
The middle of the 91 (or 92 elements)

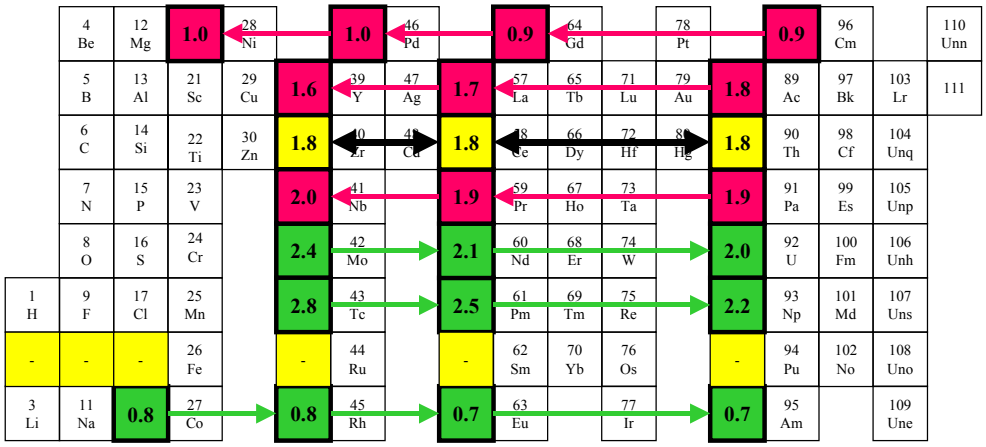
Non-Metals, Metalloids and Metals

The Alkaline Earth Metals: Bottom Row Scroll

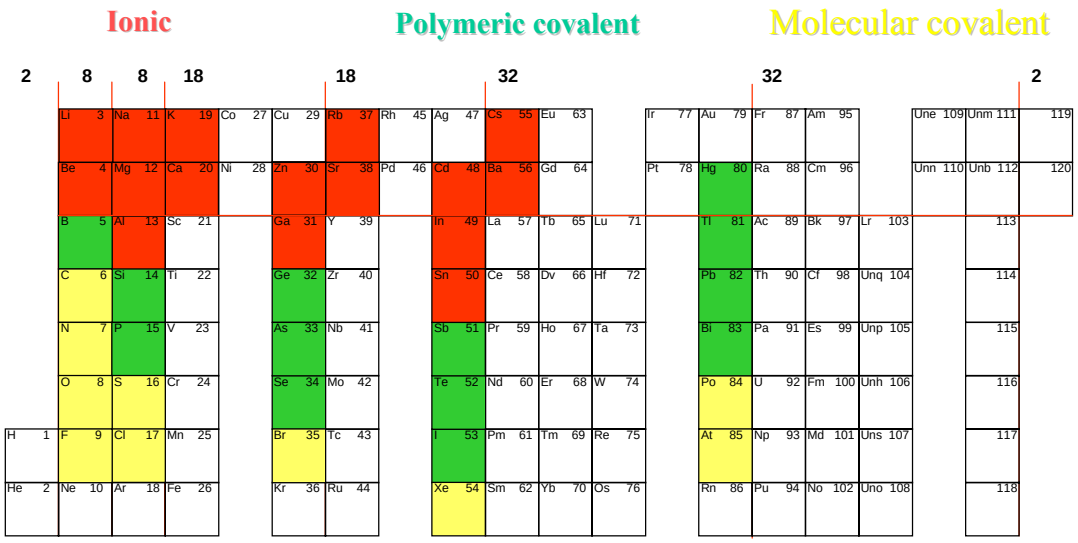


Linus Pauling's Electronegativities

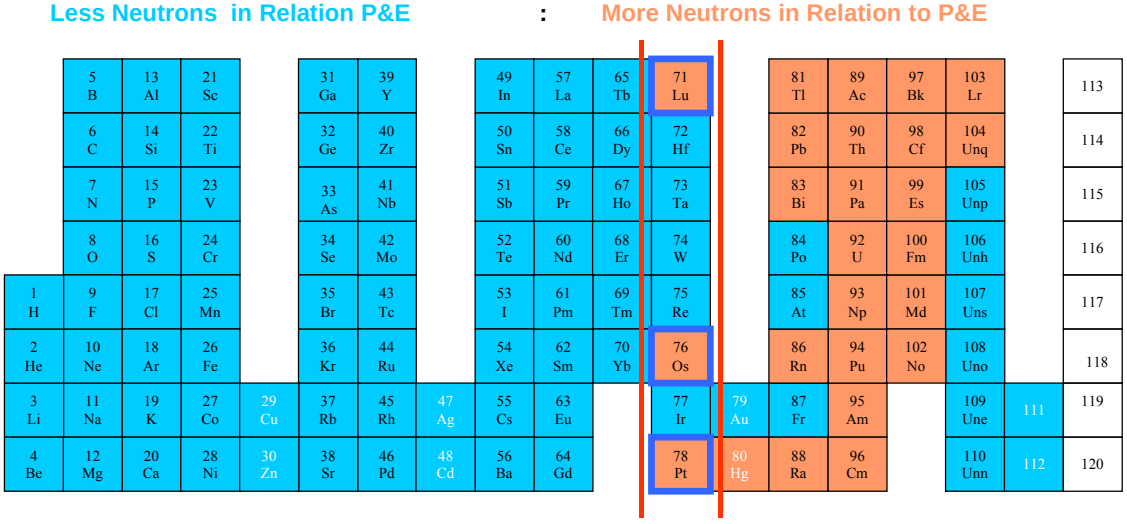
Notice how the pattern divides almost symmetrically by the groups of equilibrium formed by the Carbon family and the Inert Gases



The Classification of the Element Oxides According to Structure



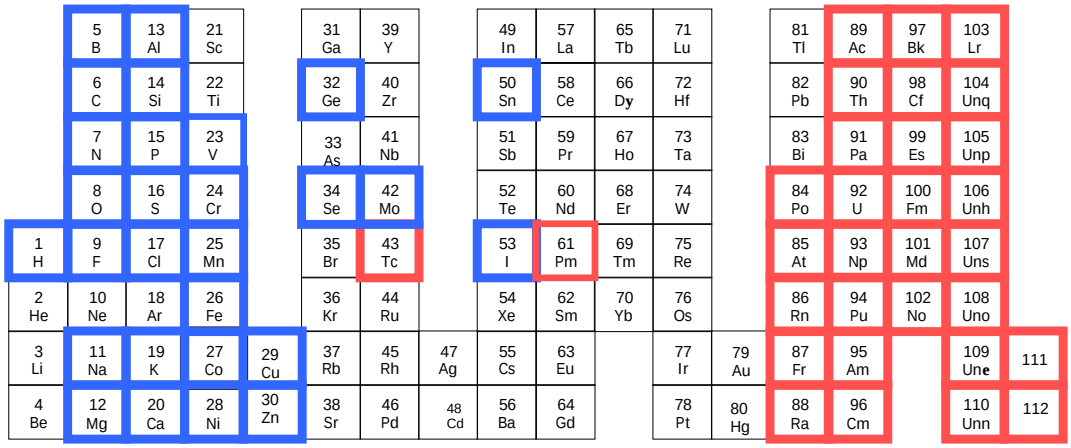
Extra Neutrons and Protons/Electrons Above the Atomic Number



Elements 71, 76 and 78 represent a point of equilibrium each with equal numbers of extra protons/electrons and neutrons

A Pattern of Opposition in

Elements Essential to Living Matter & Radioactive Elements

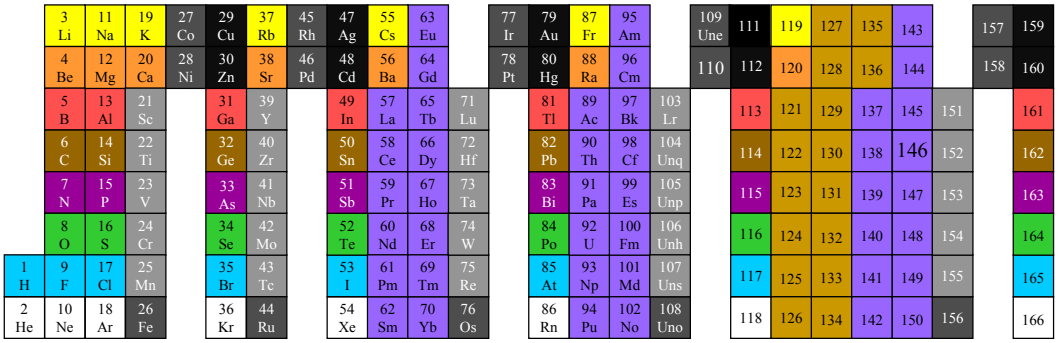


Elements Essential to Living Matter

Radioactive Elements

166 Projected Elements of the Extended

Periodic Table of the Elements



The Noble Gases: Bottom Row Scroll

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