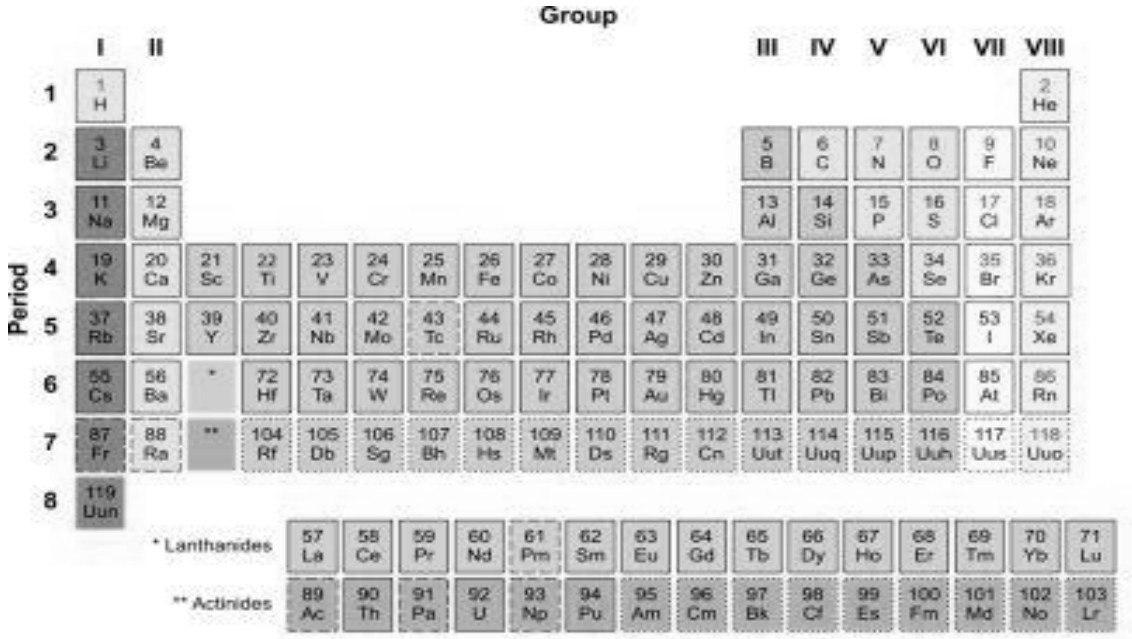
TEXT TUESDAY

the Periodic table and Elements

The Periodic Table is a way of listing the elements. Elements are listed in the table by the structure of their atoms. This includes how many protons they have as well as how many electrons they have in their outer shell. From left to right and top to bottom, the elements are listed in the order of their atomic number, which is the number of protons in each atom. The periodic table arranges the chemical elements into a pattern so that you can predict the properties of elements based on where they are located on the table. Rows of elements are called periods. The period number of an element signifies the highest unexcited energy level for an electron in that element. The number of elements in a period increases as you move down the periodic table because there are more sublevels per level as the energy level of the atom increases.

Columns of elements help define element groups. Elements within a group share several common properties.



Why is it called the Periodic Table?

It is called "periodic" because elements are lined up in cycles or periods. From left to right elements are lined up in rows based on their atomic number (the number of protons in their nucleus). Some columns are skipped in order for elements with the same number of valence electrons to line up on the same columns. When they are

lined up this way, elements in the columns have similar properties. Each horizontal row in the table is a period. There are seven (or eight) total periods. The first one is short and only has two elements, hydrogen and helium. The sixth period has 32 elements. In each period the left most element has 1 electron in its outer shell and the right most element has a full shell.

Groups

Groups are the columns of the periodic table. There are 18 columns or groups and different groups have different properties. One example of a group is the noble or inert gases. These elements all line up in the eighteenth or last column of the periodic table. They all have a full outer shell of electrons, making them very stable (they tend not to react with other elements). Another example is the alkali metals which all align on the left-most column. They are all very similar in that they have only 1 electron in their outer shell and are very reactive. This lining-up and grouping of similar elements helps chemists when working with elements. They can understand and predict how an element might react or behave in a certain situation.

Element Abbreviations

Each element has its own name and abbreviation in the periodic table. Some of the abbreviations are easy to remember, like H for hydrogen. Some are a bit harder like Fe for iron or Au for gold. For gold the "Au" comes from the Latin word for gold "aurum".

YOUR ASSIGNMENT

On ONE sheet of paper, write the names of your group members and answer all questions on that sheet.

1. Describe how the periodic table of elements is organized. (Knowledge RI CCRS8.1)
2. What are the rows on the periodic table of elements also known as? (Knowledge RI CCR 8.1)
3. Where are the most reactive elements on the periodic table? What makes one element more reactive than another? (APPLICATION CCRS 8.4)
4. Why would it be important for a scientist to understand HOW an element would react with another element (APPLICATION CCRS 8.4)
5. HOW do you think ideas like the periodic table get widely known and accepted in the scientific community? Do you believe it is easier or hard to happen now? (SYNTHESIS-making conclusion CCRS 8.1)