**Valence electron**: the number of electrons in the outer most shell of an atom.

**Group**: the columns of the periodic table. There are 18 total.

**Period:** the rows of the periodic table. There are 7 periods.

**Noble gases**: the last group of the periodic table and are stable elements. They do not combine with other elements.

**Halogens:** the group to the left of the noble gases. They have 7 valence electrons and combine readily with Alkali metals (who have one valence electron).

**The alkaline earth metals:** highly reactive metals that have 2 valence electrons and combine readily with the oxygen family (6 valence electrons).

**Transition metals:** the “bed” of the periodic table with metals that are fairly stable and have solid forms that are found in nature.

**The nonmetals:** the “pillow” of the periodic table consisting of mainly gases and fairly stable elements.

**Reactivity:** when moving from left to right on the periodic table, the most reactive are on the far left and the stable elements are on the far right. The most reactive are the alkali metals, followed by the alkaline earth metals.

**The boron family**: 3 valence electrons and used in common substances like aluminum cans.

**The carbon family**: Four valence electrons which makes it easy for them to build on each other. Carbon becomes the building block of life.

**CHNOPS**: Carbon, Hydrogen, Nitrogen, Oxygen, Phosphorous, and Sulfur. The building blocks of life and what the human body is primarily made of.

**Zinc, Iron, Magnesium, and Calcium**: The other elements that make up 3% of your body.

**Lanthanides and Actinides**: The manmade elements that are not found naturally in nature.

**Cyanobacteria**: an early bacteria that turned the toxic atmosphere of the early world into an oxygen rich atmosphere conducive to human life.

**Uranium and Plutonium**: radioactive elements used to create atomic bombs and nuclear energy.

**Nuclear fission**: the splitting of atoms which releases a massive amount of energy which causes an explosion.

**Nuclear fusion**: the combining of atoms which creates an enormous amount of energy, more of that created by fission.

**Mendeleev**: the earliest scientist who began to organize the periodic table of elements. He arranged them by atomic mass. Later we discovered they need to be arranged by atomic number.

**Atomic number**: the number of protons. This number also equals the number of electrons in an atom.

**Atomic mass/weight**: the protons and neutrons added together to equal the mass or weight of the atom. To find the number of neutrons, subtract the atomic number from the atomic mass.

**Protons**: positively charged particles. They are located in the nucleus.

**Neutrons:** neutrally charged particles. They are located in the nucleus.

**Electrons:** Negatively charged particles. They are located in the electron shells.

**Electron shells**: The shells surrounding the nucleus holding the electron. The first shell holds 2 electrons, second holds 8, and third holds 18.

**Alpha, Beta, and Gamma Radiation:** Alpha is the least penetrating, Beta is the second most penetrating, and gamma is the strongest and can only be stopped by a lead covering.