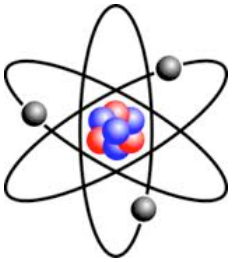
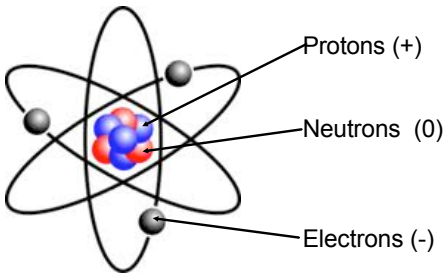
Chapter 4 and 5
Matter
Test Review
7th Grade Science

Test Tuesday

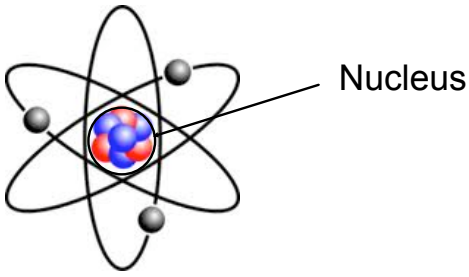
The smallest unit of matter that makes up an element that has all the properties of that element is an atom.



Atoms are made up of subatomic particles



The nucleus is the center of the atoms and includes the protons and neutrons.



The atomic mass number is the sum of the protons and neutrons in the nucleus

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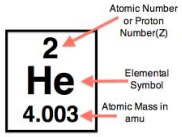
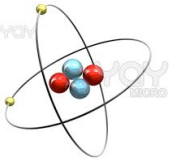
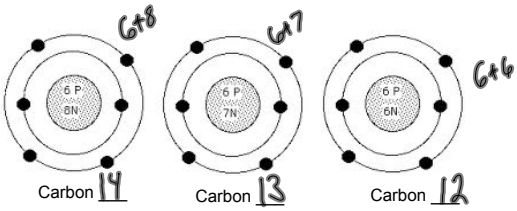
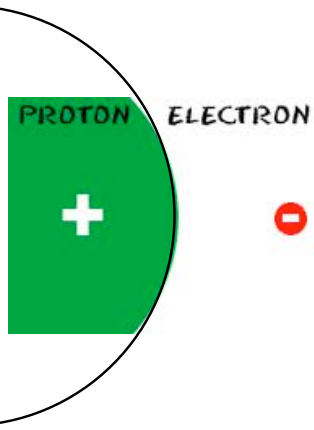
The atomic number is the number of protons in the atom.





Atomic mass number may vary within an element.

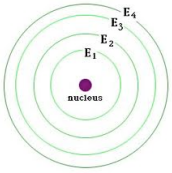




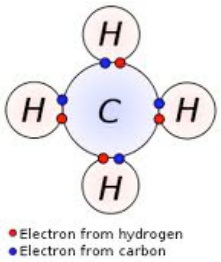
Electrons are 1/2000 the mass of a proton, so most of the atoms mass is in the nucleus.

Within an electron cloud, electrons are arranged in energy levels

Energy levels of electrons typically follow at 2, 8, 18, 32 pattern that includes sublevels

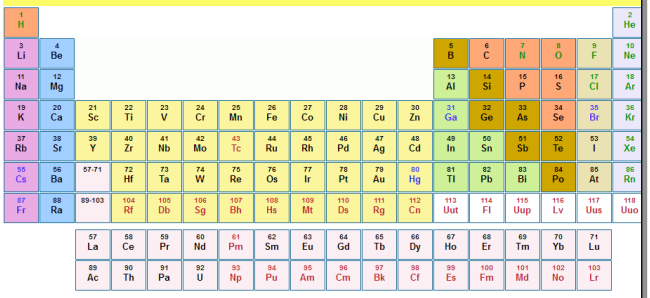


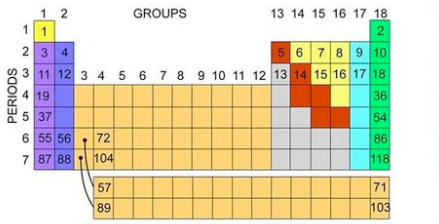
Valence number is the number of electrons lost, gained or share in the bonding process



The modern periodic table is arranged by atomic number (and valence number).

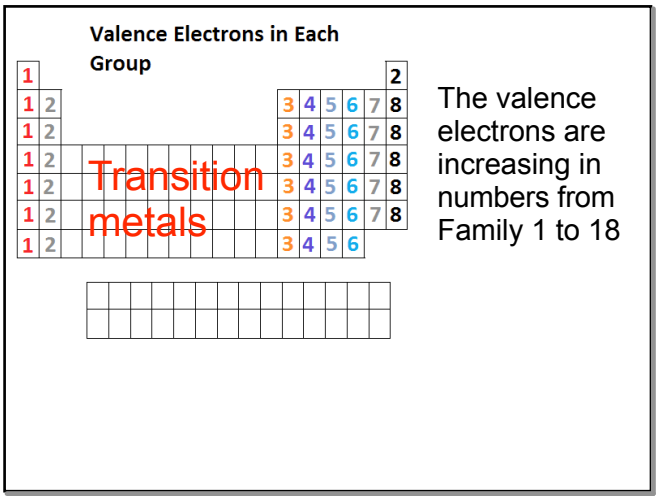
The Periodic Table



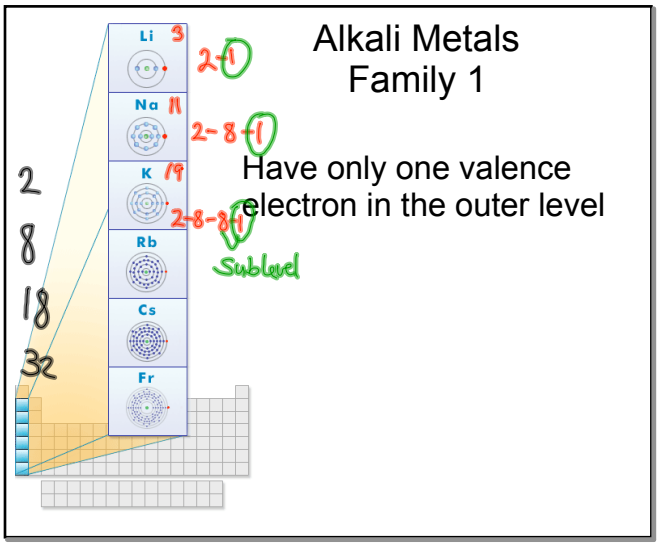


Families/Groups are listed from 1 -18
Periods are listed from 1 to 7

Groups or families are arranged in <u>columns</u>. They have similar properties and have the same number of valence electrons

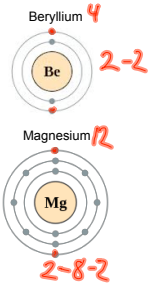


The valence electrons are increasing in numbers from Family 1 to 18



Alkali Metals
Family 1

Have only one valence electron in the outer level

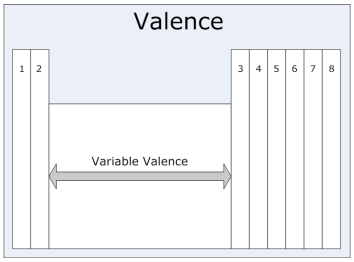


Alkaline Earth Metals
Family 2

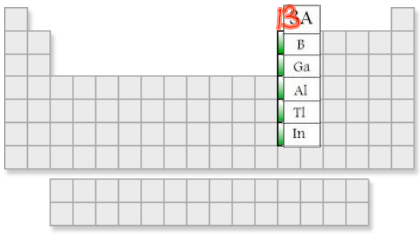
Have two valence electrons in outer level

Transition Metals
Family 3-12

Valence electron vary, typically have one or two in outer level



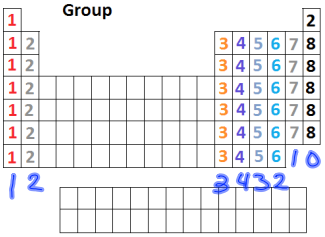
Boron
Family 13



Have three valence electrons in outer level

Valence Electrons in Each Group

Lose Electrons Easily

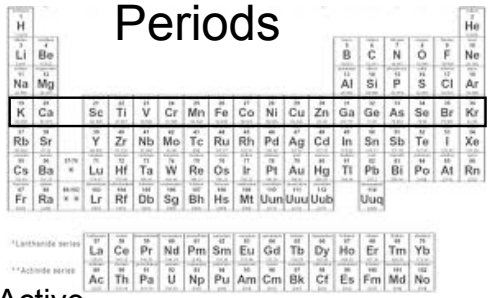


Gain Electrons Easily

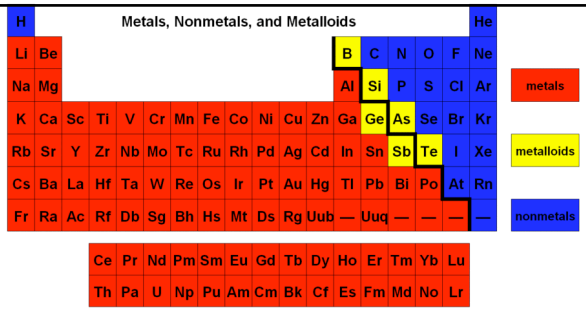
Valence electrons lose, gain or share electrons.
The period pattern is 1, 2, 3, 4, 3, 2, 1, 0

Periods are arranged in rows. They do not have similar properties.

Periods



Active Solid ⟷ Inactive (Inert) Gas



Of the 109 elements, most are metal. Metals are on the left and non metals are on the right. They are separated by a zig zag line.

Metals

Properties:
Luster
Conduct heat and electricity
High Density
Ductile
Malleable
Corrosive

Metalloids

Properties of both

Non Metals

Properties:
Low Luster
Does not conduct heat or electricity
Low Density
Not Ductile
Not Malleable
Form Compounds easily