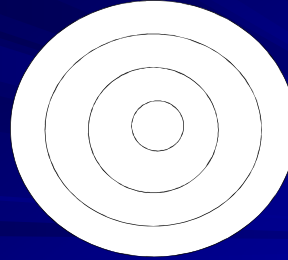


Periodic Table of Elements

Opener

B

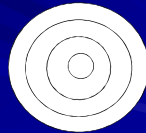


- For the element Boron give me the following
 - P
 - N
 - E
 - Atomic #
 - Atomic Mass
 - Draw Bohr Model and Place the Electrons

Go to the Boards

FOR THE FOLLOWING ELEMENTS GIVE ME

1. ATOMIC MASS
2. ATOMIC NUMBER
3. # OF PROTONS, NEUTRONS, ELECTRONS
4. BOHR MODEL and PLACE ELECTRONS



- 1) F 2) Li 3) P 4) O

The Periodic Table

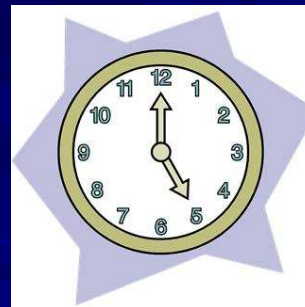
- How do we organize things?

Our Clothes



UNMENTIONABLES

TIME



SECONDS
MINUTES
HOURS

TIME



DAYS
WEEKS
MONTHS
YEARS

COMIC BOOKS



MARVEL

DC

ARCHIE

COMICS



SUPERHERO

HORROR

FANTASY

HOW DO WE ORGANIZE OUR THINGS?



OUR CLOTHES



OUR TIME



MR NEDDO'S
COMICS

WE ORGANIZE THE ELEMENTS IN THE PERIODIC TABLE

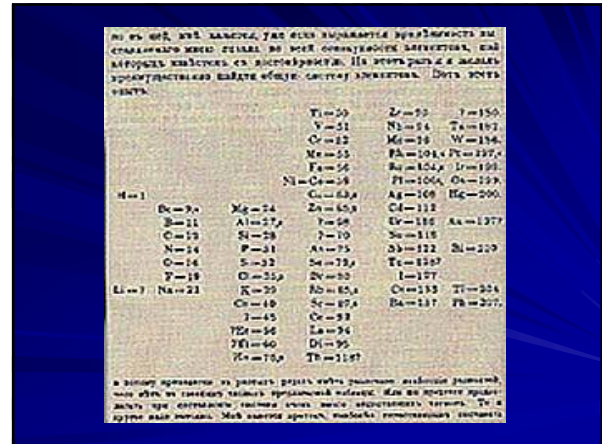
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|----|-----|----|----|----|----|----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|
| H | | | | | | | | | | | | | | | | | He | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Li | Be | | | | | | | | | | | B | C | N | O | F | Ne | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Na | Mg | | | | | | | | | | | Al | Si | P | S | Cl | Ar | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K | Ca | Sc | Ti | V | Cr | Mn | Fe | Co | Ni | Cu | Zn | Ga | Ge | As | Se | Br | Kr | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rb | Sr | Y | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd | In | Sn | Sb | Te | I | Xe | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cs | Ba | *La | Hf | Ta | W | Re | Os | Ir | Pt | Au | Hg | Tl | Pb | Bi | Po | At | Rn | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fr | Ra | *Ac | Rf | Ha | Hs | Hs | Hs | 110 | 111 | 112 | 113 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0"> <tr> <td>Ce</td> <td>Pr</td> <td>Nd</td> <td>Pm</td> <td>Sm</td> <td>Eu</td> <td>Gd</td> <td>Tb</td> <td>Dy</td> <td>Ho</td> <td>Er</td> <td>Tm</td> <td>Yb</td> <td>Lu</td> </tr> <tr> <td>Th</td> <td>Pa</td> <td>U</td> <td>Np</td> <td>Pu</td> <td>Am</td> <td>Cm</td> <td>Bk</td> <td>Cf</td> <td>Es</td> <td>Fm</td> <td>Md</td> <td>No</td> <td>Lr</td> </tr> </table> | | | | | | | | | | | | | | | | | | Ce | Pr | Nd | Pm | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb | Lu | Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No | Lr |
| Ce | Pr | Nd | Pm | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb | Lu | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No | Lr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p> Non-metals Metals Metalloids </p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Periodic Table

- This table is a remarkable way to show the manifold relationships between differing kinds of elements
- The modern table was devised in 1869 by Dimitri Mendeleev

Periodic Table

- "...if all the elements be arranged in order of their atomic weights, a periodic repetition of properties is obtained." - Mendeleev



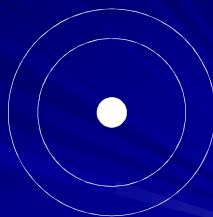
History of the Atom Part One

History of the Atom Part Two

| | |
|-------------------------------------|---------------------|
| Word/Term: Valence Electrons | Drawing: |
| Describe in own words: | |
| Textbook Definition: | |
| Rate my Understanding: 1 2 3 4 | |
| How I remember it: | Reflections: |

Valence Electrons

- All of the electrons in the Outer Shell of the Atom



6
C

Octet Rule

- Atoms are more stable that have a full shell of electrons
- For most atoms, 8 valence electrons is full
 - Octet = 8
- Hydrogen and Helium are exceptions
- Atoms "want" to have 8 electron in their outer shell
 - All other elements will lose, gain or share to reach 8 electrons

- Elements with the same valence electrons have similar reactivity, so they tend to react the same

Periods, Groups and Valence Electrons

| | | | | | | | | | | |
|---|----|----|---|----|----|----|----|----|----|----|
| | 1A | 2A | 3A | 4A | 5A | 6A | 7A | 8A | | |
| 1 | H | He | | | | | | | | |
| 2 | Li | Be | B | C | N | O | F | Ne | | |
| 3 | Na | Mg | Al | Si | P | S | Cl | Ar | | |
| 4 | K | Ca | Transition Metals (valence electrons vary) | | Ga | Ge | As | Se | Br | Kr |

Metals and Non-Metals

| | | | | | | | | | | |
|---|----|----|---|----|----|----|----|----|----|----|
| | 1A | 2A | 3A | 4A | 5A | 6A | 7A | 8A | | |
| 1 | H | He | | | | | | | | |
| 2 | Li | Be | B | C | N | O | F | Ne | | |
| 3 | Na | Mg | Al | Si | P | S | Cl | Ar | | |
| 4 | K | Ca | Transition Metals (valence electrons vary) | | Ga | Ge | As | Se | Br | Kr |

← Metals
Non-metals →

Location of Metals and Non-Metals

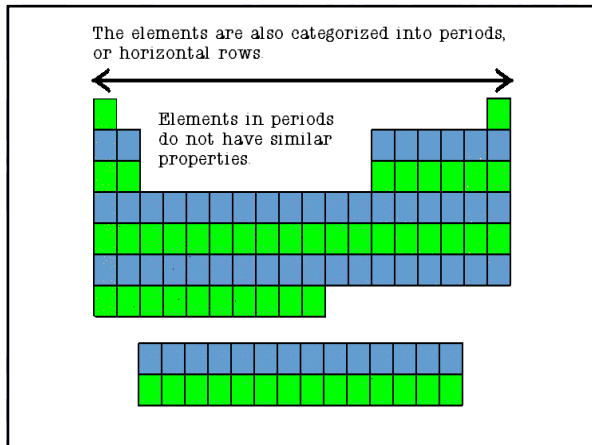
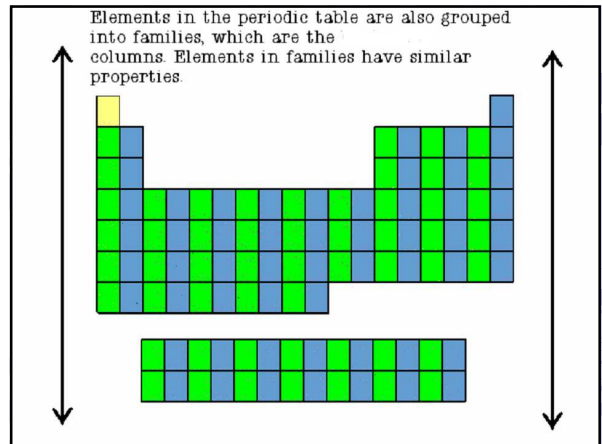
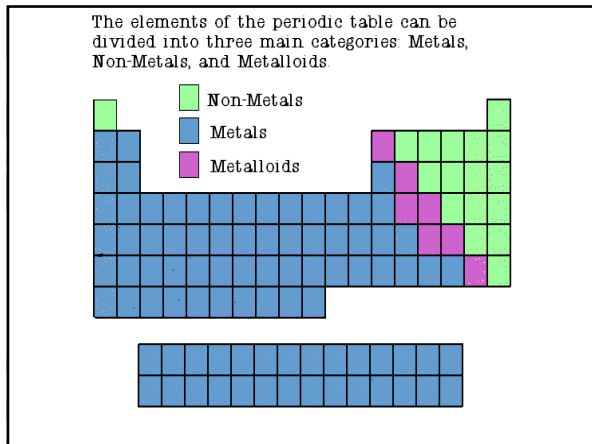
- Metals are located on the left side of the Periodic Table
- Non-Metals are located on the right side of the Periodic Table
- Metals and Non-Metals have different properties and bond differently, making different kinds of compounds

Metal or Non-Metal?

- Calcium (Ca)?
- Bromine (Br)?
- Silicon (Si)?

Metalloids

- Have characteristics of Metals and Non-Metals
 - Boron
 - Silicon
 - Germanium
 - Arsenic
 - Antimony



Electron Configuration

- The Group or Family tells you how many electrons are on the outer shell of an atom or the Valence #
- The Period tells you how many energy levels are around the nucleus of the atom

¹³Al

Groups or Families

- Columns of elements are called groups or families.
- Elements in each group have similar but not identical properties.
- All elements in a group have the same number of valence electrons.

Periods

- Each horizontal row of elements is called a period.
- The elements in a period are not alike in properties.
- The first element in a period is always an extremely active solid. The last element in a period, is always an inactive gas.

Homework

- Metals, Non-Metal and Valence Electrons Worksheet
- Next Class
 - Quiz 7
 - Periodic Table II