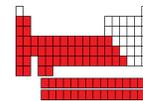


Periodic Table: Group Properties

Mr. John Sudbury

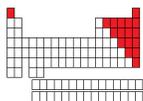
Metals

- ▶ Metals form positive ions because they lose electrons to have a full octet below.
- ▶ Metals are typically silver or gray in color
- ▶ Metals have luster. (shiny)
- ▶ Metals are mostly solid at room temperature.
- ▶ Metals are ductile and malleable.
- ▶ Metals are good conductors of heat.
- ▶ Metals are good conductors of electricity.



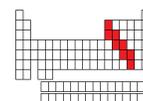
Nonmetals

- ▶ Nonmetals form negative ions because they gain electrons to fill their octet.
- ▶ Nonmetals represent solids, liquids & gases.
- ▶ Nonmetals are poor conductors of heat.
- ▶ Nonmetals are poor conductors of electricity.
- ▶ Nonmetals can be a variety of colors.



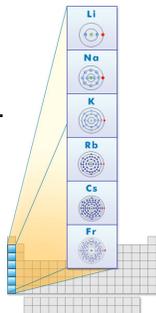
Metalloids

- ▶ Metalloids can lose or gain electrons to fill their octet based on what group they are in.
- ▶ Metalloids share properties of both metals and nonmetals.
- ▶ Can be shiny or dull
- ▶ Many metalloids are semiconductors.

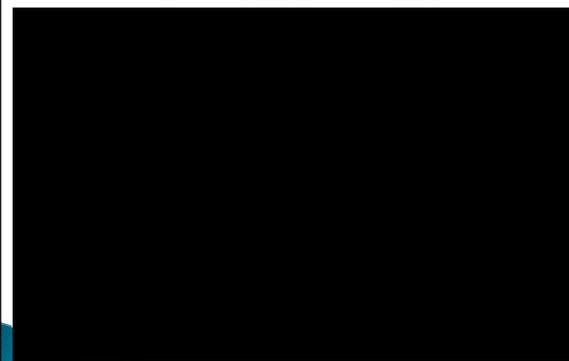


Alkali Metals

- ▶ Have 1 valence electron
- ▶ Lose that electron to be a +1 ion.
- ▶ Most reactive of all metals.
- ▶ Silvery appearance.
- ▶ Soft enough to cut with a knife.
- ▶ Strongly react with water.
- ▶ Do not occur as elements in nature. (usually as ions, or bonded in compounds)

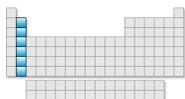


Alkali Metals in Water!!!



Alkaline Earth Metals

- ▶ Have 2 valence electrons.
- ▶ Lose both electrons to be a +2 ion.
- ▶ Very reactive (not as reactive as Alkali metals).
- ▶ Not freely found in nature.



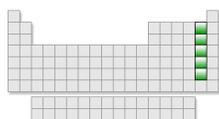
Transition Metals



- ▶ Valence electrons are in various energy levels (s, p & d) so they can have multiple charges.
- ▶ All are positive because they lose electrons.
- ▶ Ductile and malleable.
- ▶ Very good conductors of heat or electricity.
- ▶ Fe, Co, & Ni are the only known elements that can produce a magnetic field.

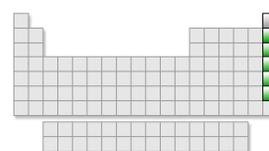
Halogens

- ▶ Halogens have 7 valence electrons and want 1 more.
- ▶ Halogens form -1 charge ions.
- ▶ Halogens are the most reactive nonmetals.



Noble Gases

- ▶ Have a full outer shell of 8 electrons (except helium who is full with two electrons)
- ▶ They are inert (they do not react with other elements).
- ▶ Odorless & colorless.



The End

- ▶ Mendeleev - PT is arranged by increasing atomic mass.
- ▶ Moseley - PT is arranged by atomic number.
- ▶ PT is arranged by common property in the various groups.