

Families of Elements

Chapter 3.3

Families

- Elements are grouped in families b/c they have similar properties
- Elements are unique, but have similar properties (as members of a family)

Metals / Nonmetals

- Metals = elements that are good conductors of heat and electricity
- Nonmetals = elements that are poor conductors
- Semiconductors = nonmetals that can conduct under certain conditions

Alkali Metals

- Located in group 1 of the periodic table
- Highly Reactive; reacts violently with H_2O
- One valence electron can be easily removed = 1+ Cation
- Not found by itself in nature

Alkaline-Earth Metals

- Found in group 2 of Periodic Table
= 2 valence electrons
- Less reactive than alkali metals,
but still react to form 2+ ions
- Calcium compounds are common
in marine life

Transition Metals

- Much less reactive than group 1 or 2
- Includes gold
- Can lose electrons to form cations
(ex – Au^+)
- Includes Mercury, which is a liquid at room temperature

Radioactivity

- The nuclei of the elements are continually decaying to form new elements

Halogens

- Group 17
- Highly reactive
 - Because it only needs one more electron to fill its shell

Noble Gas

- Group 18
- Exist as a single atom
- Inert
 - Means unreactive (because outer energy level is full)

Semiconductors

- Nonmetals that have some metal properties
- Able to conduct heat and electricity under certain conditions