AP Bio Chemistry of life Cheat Sheet

by STEMhighschool via cheatography.com/121412/cs/22213/

Basics

Everything is made up of matter	Only 25 elements are essential for life
Matter is made up of atoms	96% of living matter is N,H,C,O
Atoms consist of protons, Neutrons, and Electrons	4% of living matter is Ca,K,S,P

Bonding Properties

Electron Effects-

determine chemical behavior of atom

depends on the # of the electrons in the outermost shell called the "-valance electrons" & "Valance shell"

atoms want a complete octate (8 valance electrons) except for hydrogen (wants 4)

Chemical Reactivity

Atoms tend to complete a partially filled valance shell or empty a partially filled valance shell.

This drives reactions & completes bonds

Bonds in chemistry

Strong Bonds	Weak Bonds
Covalent Bond -> share electrons evenly	Hydrogen Bond -> attraction between + and -
	Ionic

Covalent Bonds

Why are covalent bonds so strong?	Multiple covalent bonds
* 2 atoms share a pair of electrons	* Double Bonds ex: O2
* both atoms are holding on	* 2 Pairs of electrons
* Very stable	* Triple bonds ex: N2 (very strong)
* Forms Molecules ex: H2O	* 3 pairs of electrons

Polar vs Non Polar Covalent Bonds

Polar Covalent	Non-Polar Covalent
No areas of + or - because electrons are shared evenly	Electrons are shared unequally by atoms
Ex: Hydrocarbons (Methane CH4)	Ex: (H2O) -> O is more - and pulls electrons away from the H making O have a - charge.
Balanced and stable	

Hydrogen Bonding

Attraction between +H in one H2O molecule and the -O in another H2O molecule

Weak Bond

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