Name	
Date	Block

## Periodic Trend Research

1.	Which trend are you researching? Electronegativity Trend II
2.	Define the word " <b>electronegativity</b> ". desire to gain a bonding pair of electrons (desire to fill an orbital)
3.	How is electronegativity measured? <u>The Pauling scale measures electronegativity on a scale of 0 to 4;</u>
	Electron Affinity measures the energy required to gain an electron in kJ/mol
4.	What happens to the trend moving from <b>left to right</b> across a period? <u>increases; maxes out at halogens</u>
5.	Explain how this trend affects the <b>noble gases</b> . Noble gases have <b>NO</b> electronegativity because their
	valence orbitals are already full; they already have 8 valence electrons s p
6.	What happens to the trend moving <b>down a group</b> ? <u>Electronegativity decreases because valence orbital</u> is further from nucleus making it more difficult to attract electrons
7.	How does <b>Coulomb's Law</b> affect this trend? <u>Coulomb's Law says the closer the opposite charges the</u>
	stronger they will attract each other; this is seeing in behavior down a group
8.	Explain how the trend is different for <b>metals versus nonmetals</b> . <u>Metals have low EN because they want</u>
	to lose electrons; most nonmetals have high EN because gaining electrons makes them more stable
9.	Which group/ element has the largest value for this trend? <u>Halogens (Group 17)</u> / <u>Fluorine</u>
10.	Which group/ element has the <b>smallest value</b> for this trend? <u>Noble Gases (Group 18)</u> / <u>Radon</u>
11.	How does this trend affects ionic bonding?ionic bonding involves metal atoms transferring electrons
	to nonmetals; the higher the EN, the more likely the nonmetal will accept the electron
12.	How does this trend affect <b>covalent</b> bonding? <u>Since covalent bonding only involves nonmetals that</u>
	have mostly full valence orbitals, their EN are both high, so they share electrons to meet Octet Rule
13.	How does this trend affect the bonds <b>polarity</b> ? <u>If the difference in electronegativity between two atoms</u>
	is large then the bond will be ionic; if atoms have similar electronegativity, then the bond will be covalent.
	Non-polar Covalent (DEN < 0.5)Polar Covalent ( $\Delta$ EN 0.5 to 1.5)Ionic bonding ( $\Delta$ EN >1.6)
14.	How are other trends related to electronegativity? <u>Atomic radius and ionic radius are inversely</u>
	proportional to electronegativity because larger atoms make it more difficult to attract electrons to
	the valence orbital. Metallic property is also inversely proportional because it favors losing
	electrons, not gaining them. Ionization energy is directly proportional because the more like an
	atom is to gain an electron, the more energy it will take to remove one.