

11/12/15

Periodic Table Homework answers

1. Mendeleev
2. atomic mass
3. modern periodic Law
4. alkali metals
5. 3
6. transition metals
7. groups valence e^-
8. halogens
9. element symbol
10. semi-metals

matching

1. c
2. d
3. g
4. e
5. f alkali earth
6. a
7. b
8. f alkali metals

m.c.

1. c
2. b
3. b
4. d
5. a
6. b
7. c
8. b

Atomic Radii Inc

IE inc. EN inc.

IE noble gases highest

Smallest

Atomic Radii Increase

IE inc. EN increase

	Larger								
	I A	II A	Group B	III A	IV A	V A	VI A	VII A	VIII A
# of Valence Electrons	1	2	2	3	4	5	6	7	8
Charge	1+	2+		3+	4+	3-	2-	1-	☺
Bonding Capacity	1	2		3	4	3	2	1	0
Shape - if central atom									
Resulting Bond Angle									

* Noble Gases - no value for EN.

Fr

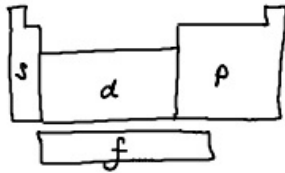
- A.R. Large = Lower Left (Francium = largest, helium = smallest)
 IE highest = noble gases (helium = highest, francium = lowest)
 EN highest = fluorine (fluorine = highest, francium = lowest)

Periodic Trends

Energy level = (row) period # (1 through 7)

Valence e⁻ = (column) group # (1-8)

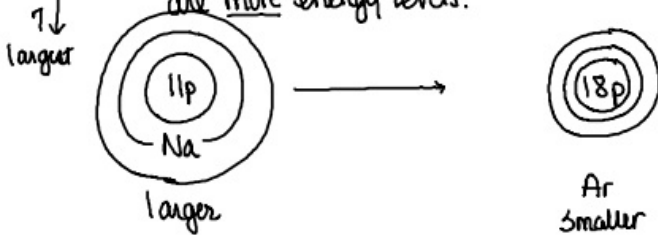
Sublevels = areas within the electron cloud (s, p, d, f)



the sublevel block is where the last e⁻ (valence) is placed.

Atomic Radius = the distance from the nucleus to the outer most e⁻

atoms become larger as you go down a group because there are more energy levels.



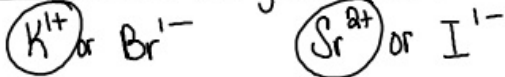
The larger the # of protons the stronger the pull on the e⁻ shrinking the size of the energy levels.

Ionic Radius: the radius after e⁻ are lost or gained.

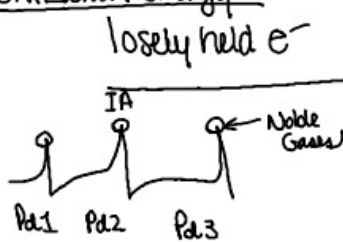
e⁻ lost = positive charge
(get smaller)

e⁻ gained = negative charge
(get larger)

Practice: which ion gets smaller?



Ionization energy (IE): energy required to remove the most



IE increases as you increase the # of protons
(← →)

Larger atoms have very low IE

Electronegativity (EN): an atom's relative attraction for the e⁻



in a covalent bond. (sharing) * No value for Noble Gases

EN increases as the # of protons increase (→ x)

EN decreases as atoms get larger

4×8 or 8×4

each family has 4 members