

Ionization Energy

Name: _____

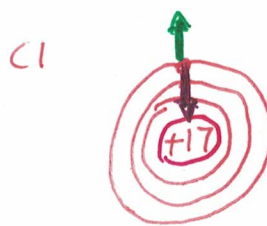
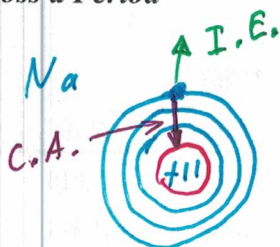
Period: _____

Date: 10/5/18

IONIZATION ENERGY – the energy required to remove the outermost Electron of an atom.

I.E. must overcome C.A.

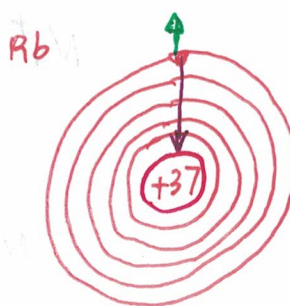
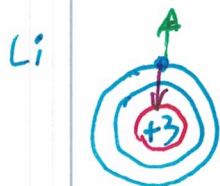
Across a Period



- More Protons
- More N.C.
- Larger C.A.
- Same Shielding

- Greater Ionization Energy Required

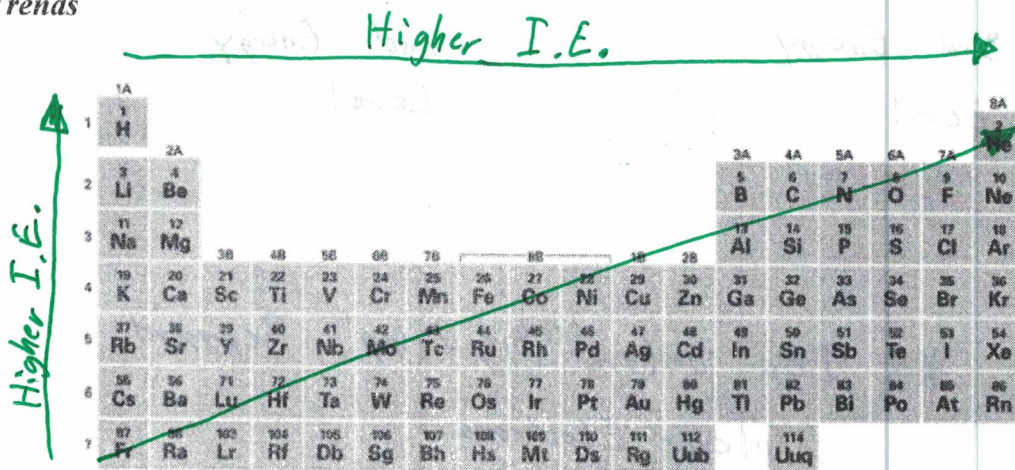
Down a Group



- More Energy
- Greater Distance/Shielding
- Decreases C.A.

- Less Ionization Energy Required

General Trends



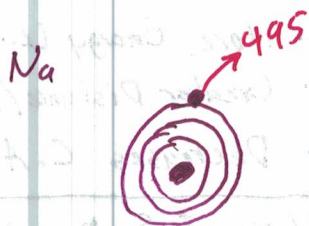
First Ionization (IE_1) – the energy required to remove the First electron.

Second Ionization (IE_2) – the energy required to remove the Second electron.

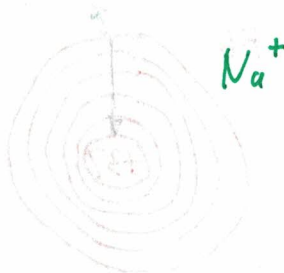
$V e^-$	Element	I_1	I_2	I_3	I_4	I_5	I_6	I_7
1	Na	495	4562	(inner-shell electrons)				
2	Mg	738	1451	7733				
3	Al	578	1817	2745	11,577			
4	Si	786	1577	3232	4356	16,091		
5	P	1012	1907	2914	4964	6274	21,267	
6	S	1000	2252	3357	4556	7004	8496	27,107
7	Cl	1251	2298	3822	5159	6542	9362	11,018
8	Ar	1521	2666	3931	5771	7238	8781	11,995

1st. I.E.

2nd I.E.



Removed e^- from
3rd Energy
Level.



Remove e^- from
2nd Energy
Level

** IE_s before "Big Jump" Represent
Valence Electrons