

Ions and Ionization

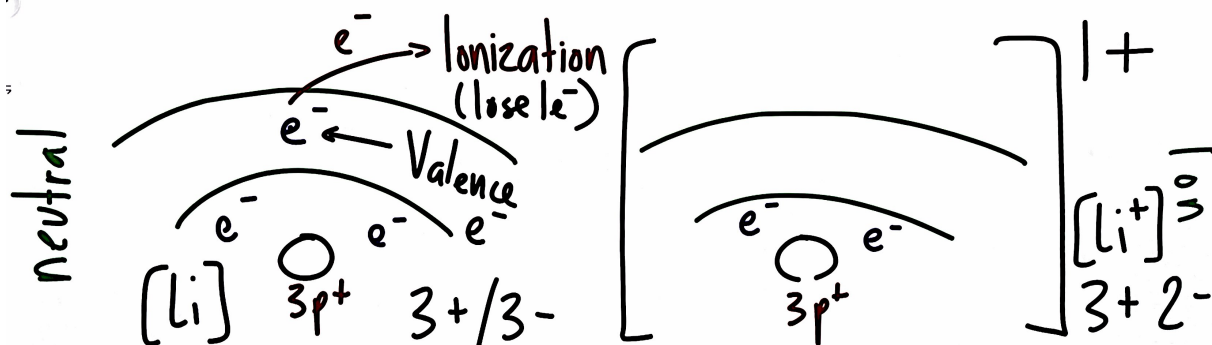
Cation (+ ion)

Jr

[Ionization = Form Ion]

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smaller than neutral atom



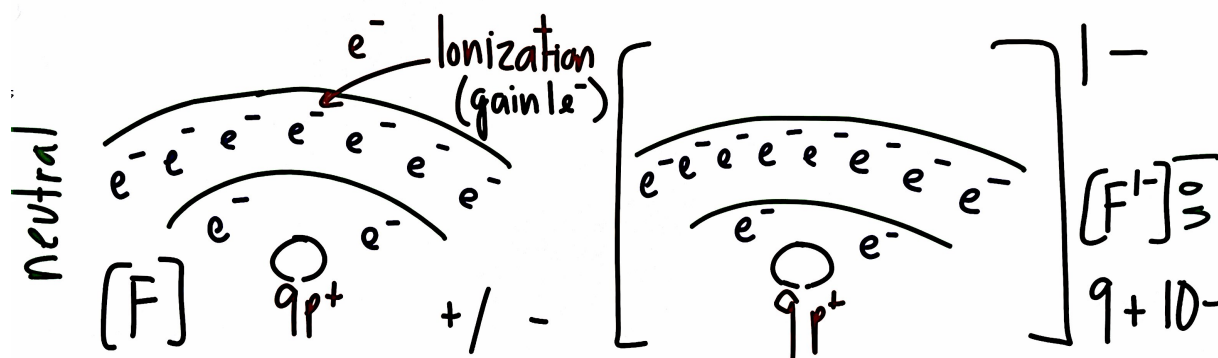
Ions and Ionization

Anion (- ion)

Jr

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larger than neutral atom

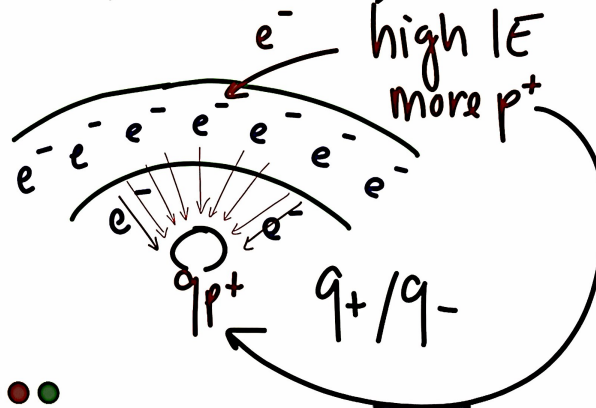
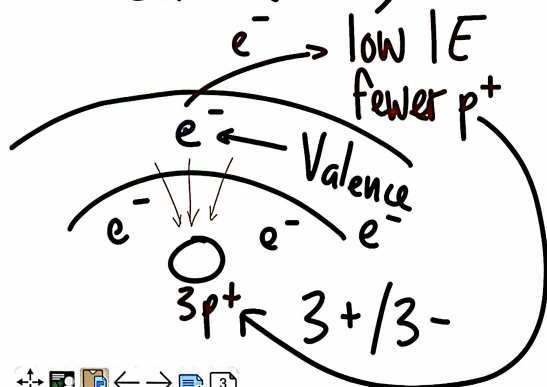


Ionization Energy

Energy required to remove a val. e^- to form an ion

Cation (+ ion) Metal

Anion (- ion) Non-Metal



Trends in Ionization Energy

Group Trend Inc. Across Table

group	1	2	13	14	15	16	17
val e^-	1	2	3	4	5	6	7
	lose e^-			gain e^-			

IE low few + high more +

Period Trend Dec. down Period

Period	Atom Size	IE	hard
1	smaller	↑	more + pull
2	larger		smaller
3			
4			
5			
6	larger	↓	easy less + pull

group charge Summary

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group	1	2	13	14	15	16	17	18
val ^{e-}	1	2	3	4	5	6	7	8
Ion Charge	+1	+2	+3	*	-3	-2	-1	0
Type Ion	Cation				Anion			no ion
Ion Val ^{e-}	0				8			N/A

* C = -4 Si, Sn, Pb = +4