

Gen Chem with Dr. Mattson

Monday 10/26/15

Today: 6.1 - 6.6

Tuesday: Expt 8
Vinegar titration

Wednesday: Finish Chp 6

Thursday: No Review

Friday: Start Chp 7 (on CK 5)
Nomenclature Quiz

Sunday: Review @ 7pm in Eggplant 110

Monday: Test! CK 4

Z_{eff} : Effective Nuclear Charge

H

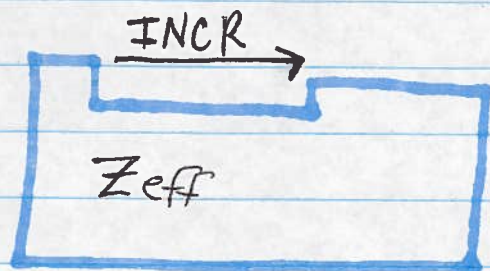


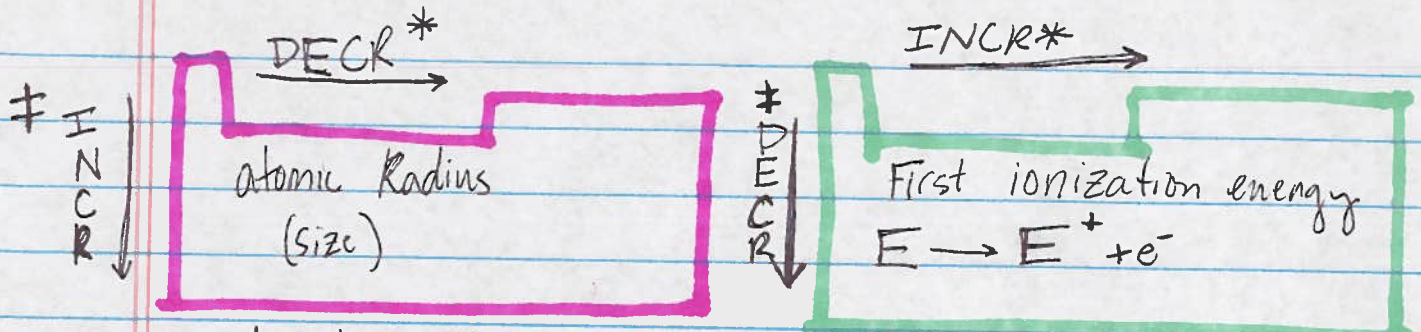
$$Z=1$$
$$Z_{\text{eff}}=1$$

He



$$Z=2$$
$$Z_{\text{eff}}=1$$



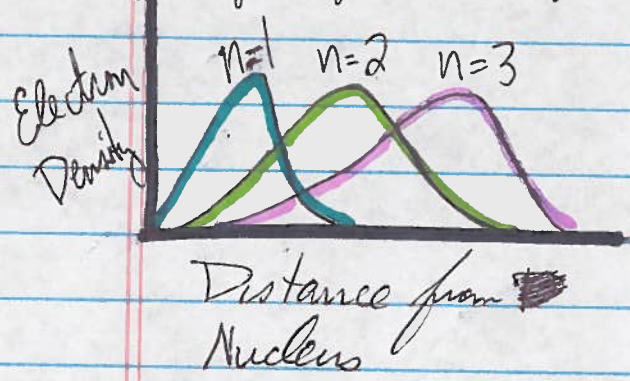


* due to Z_{eff}

(energy required to take away 1 electron)

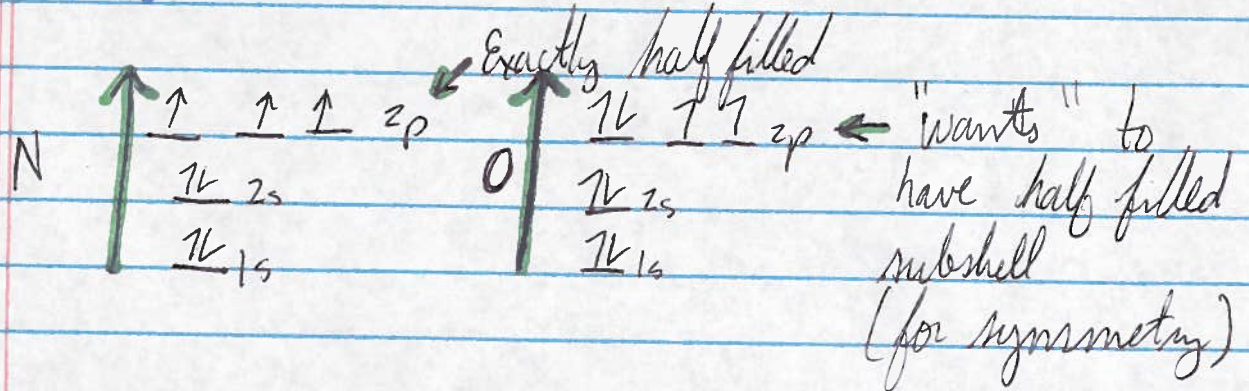
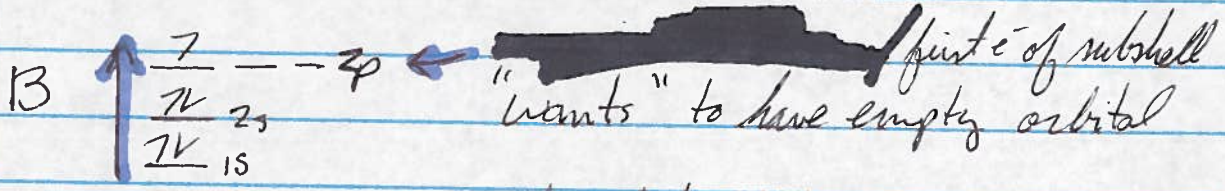
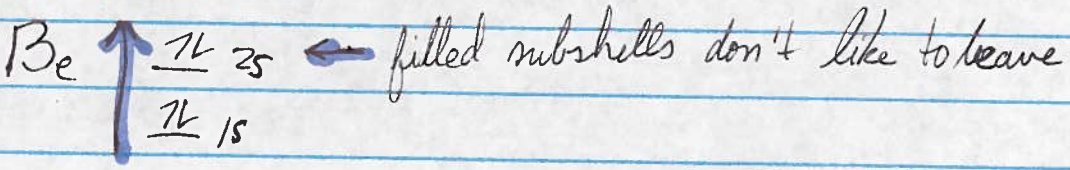
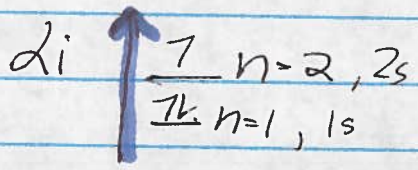
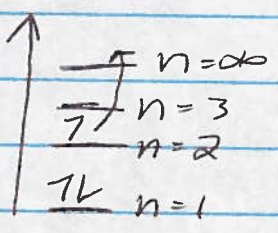
Always requires some energy

bcz of new shells filled, further from nucleus, higher in Energy

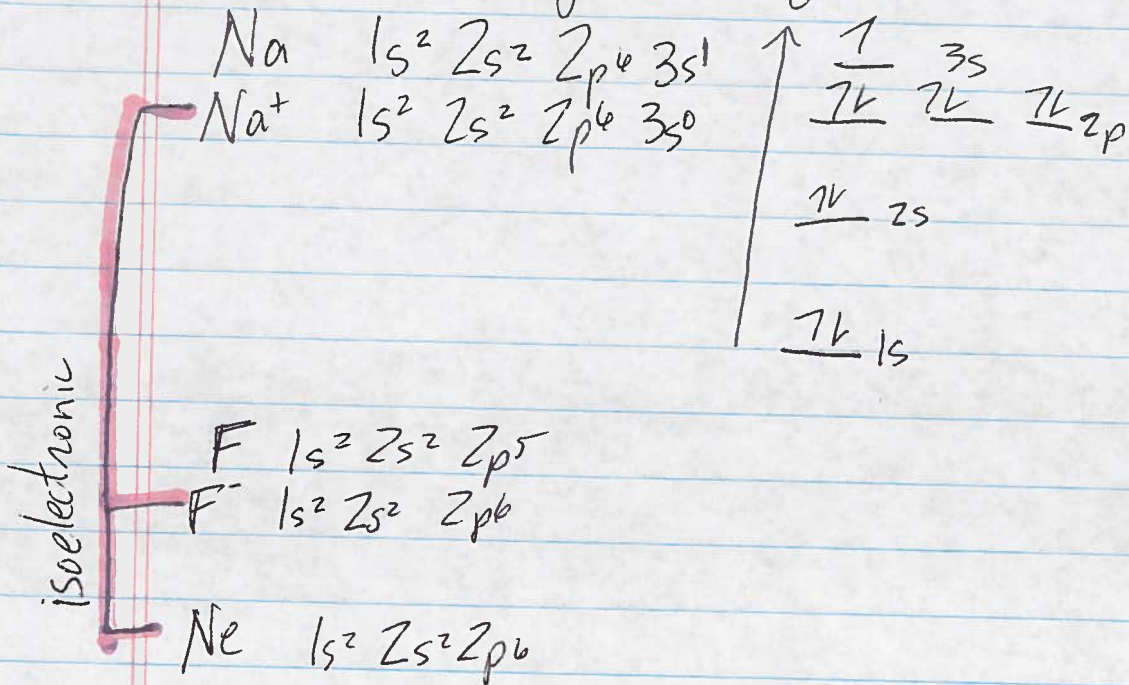


$$n = 1, 2, \dots \rightarrow n = \infty$$

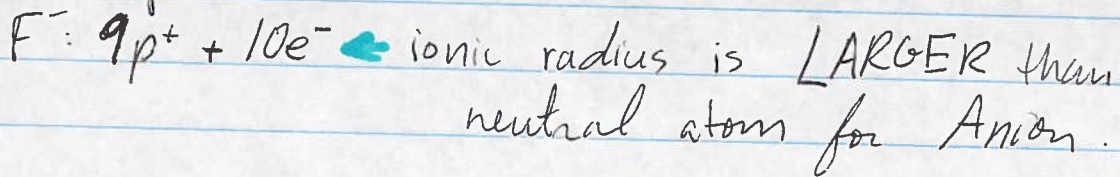
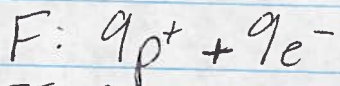
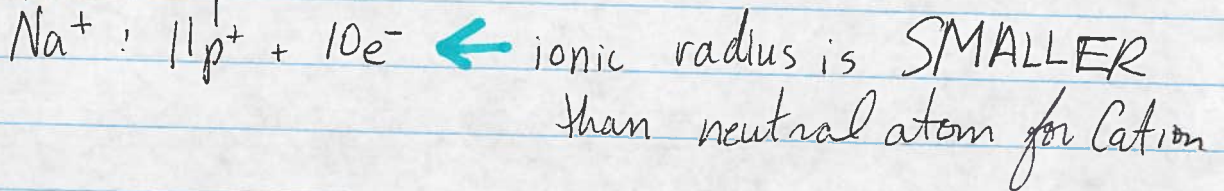
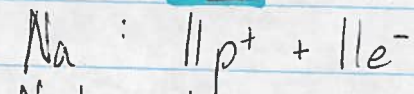
$$d_i \ 1s^2 2s^1 \rightarrow d_i^+ \ 1s^2 2s^0$$



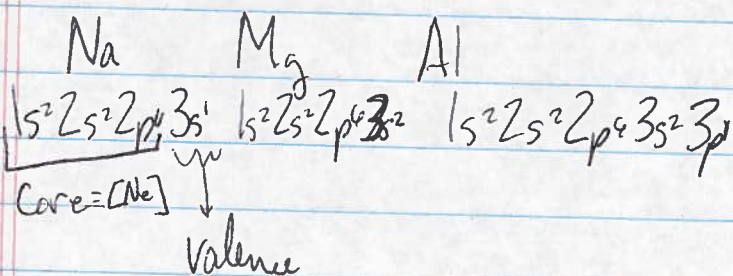
Electron Configuration of ions

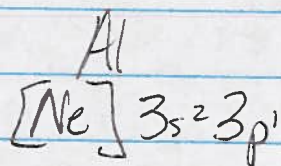
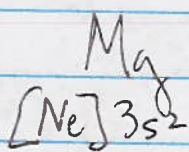
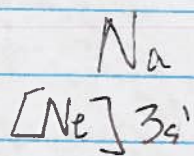


Z

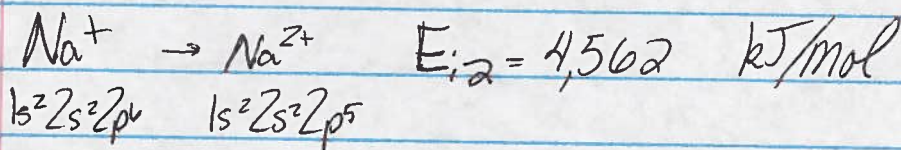
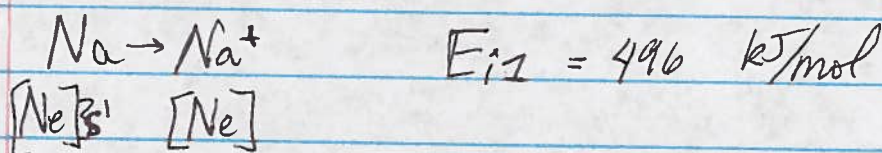


TAKE-AWAY: Cations are small, anions are big





Valence electrons can be removed (to make cations) reluctantly
core e⁻ are VERY difficult to remove



Folder Activity Chapter 6 Day 1 26 October 2015

Printed Name: Monika Salkauskas Chm 203 Student number: TA

1	1																	2
	H																	He
2	3	4											5	6	7	8	9	10
	Li	Be											B	C	N	O	F	Ne
3	11	12											13	14	15	16	17	18
	Na	Mg											Al	Si	P	S	Cl	Ar
4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
5	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
6	55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
	87	88	89	104	105	106	107	108	109	110	111	112		114		116		118
	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt									

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

1. Write the electron configuration for each of the following. You may use core notation for all with $Z > 18$

(a) Na^+ 1s²2s²2p⁶ $1s^2 2s^2 2p^6$	(b) O^{2-} $1s^2 2s^2 2p^6$	(c) Sr^{2+} $[\text{Kr}]$
(d) Sn^{2+} $[\text{Kr}] 5s^2 4d^{10}$	(e) Cr^{3+} $[\text{Ar}] 4s^0 3d^3$	(f) P^{3-} $[\text{Ar}]$

2. How many unpaired electrons does each of the elements in Question 1 possess?

(a) Na^+ 0	(b) O^{2-} 0	(c) Sr^{2+} 0
(d) Sn^{2+} 0	(e) Cr^{3+} 3	(f) P^{3-} 0

3. List each set of atoms/ions from smallest to largest.

(a) Na^+ Mg^{2+} Al^{3+} ① Al^{3+} ② Mg^{2+} ③ Na^+	(b) Na^+ K^+ Rb^+ ① Na^+ ② K^+ ③ Rb^+	(c) S^{2-} Se^{2-} Te^{2-} ① S^{2-} ② Se^{2-} ③ Te^{2-}
(d) Sn Sn^{2+} ① Sn^{2+} ② Sn	(e) F F^- ① F ② F^-	(f) P^{3-} S^{2-} Cl^- ① Cl^- ② S^{2-} ③ P^{3-}

4. Graph the following periodic trends. The y-axis increases in value upward.

