Announcements – Lecture VII– Tuesday, Sep 29th

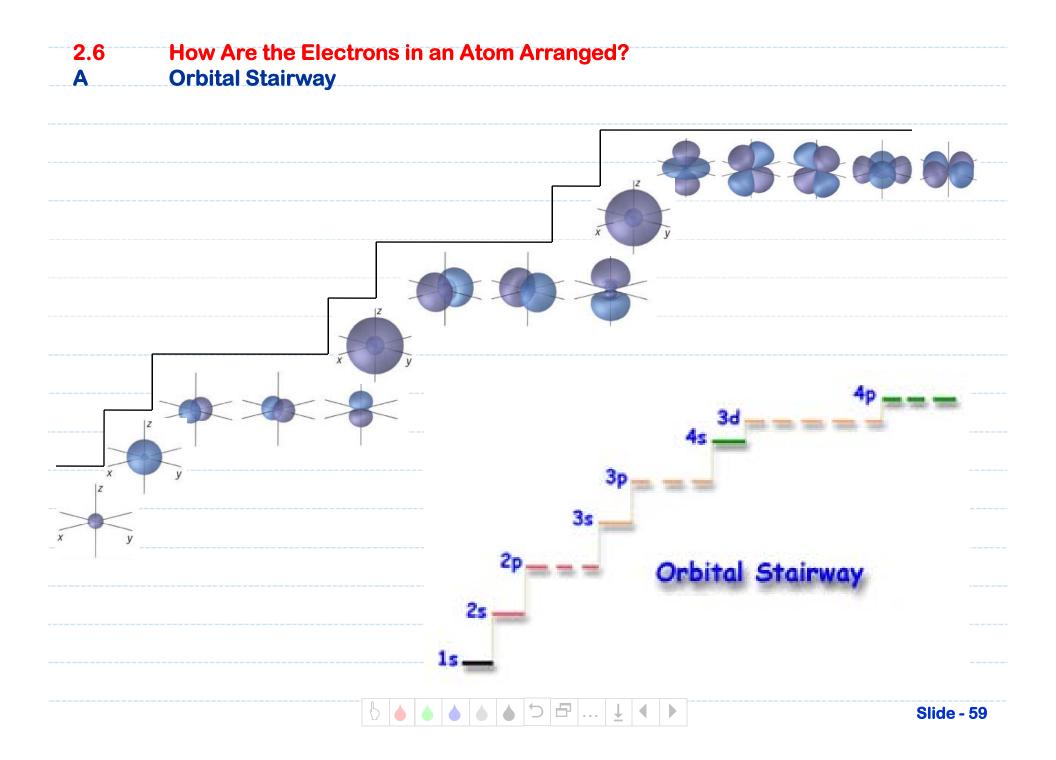
- Exam I Tuesday, October 6th In Class
 Second Lab Saturday, October 3rd ... 1-4pm ... ISB 155/60 (A-E)

 a) Print lab prior to coming to lab -- use the 'Print Friendly Version' located on the top left hand side of the page this is the version that contains the 'Data Sheet' that you will hand in upon completing the lab.
 b) First set of Lab Owls will appear in Owl after this lab. There are a total of 4 sets of Lab Owls and they are worth 25% of the Lab Grade.
 - 3.

iClicker:

Choose any letter: A-E





2.6		Hov	Are the	Elec	tro	ns in a	an Atom Arranged?								
	Orbital Box Electron Configurations Worksheet.														
Gp		#e	1s 2s	2p	3s	Зр	Electronic Configuration	Noble Gas	Valence	Lewis Dot					
1 <i>A</i>	н	1					ls'			н					
8A	He	2 (1					ls²			He					
1A	Li	3				\square				Li					
2A	Be	4			H		<u> 5² 25'</u>)5 ² 25 ²			Be					
3A	в	5					IS ² 25 ² 2p ¹			В					
4A	С	62					15 ² 25 ² 2p2			С					
5A	Ν	7		$\uparrow \uparrow \uparrow$			15² 25² 2p ³			N					
6A	0	8					1522522p4			0					
7A	F	9					15°25°295			F					
8A	Ne	10					1522522p6	•		Ne					

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	Electron Configurations Worksheet.														
Gp		#e	1s	2s	2p	35	3p	Electronic Configuration	Noble Gas	Valence	Lewis Dot				
1A	Na	11	N		NNN	↑		152252p6 351			Na				
2A	Mg	12						1522522p6 352			Mg				
3A	AI	13					↑	1522522p6 352 3p1			Al				
4A	Si	14			NNN	\mathbf{k}	$\uparrow \uparrow$	IS 25 20 35 3p2			Si				
5A	Ρ	15			NNN		$\uparrow \uparrow \uparrow$	5 ² 25 ² 29 ⁶ 35 ² 39 ³			Р				
6A	s	16			NNN			152252p63523p4			S				
7A	CI	17		\mathbb{N}	NNN			152252263523p5			CI				
8A	Ar	18					NNN	1522522p63523p6			Ar				

How Are the Electrons in an Atom Arranged?

2.6

2.6		Hov	v Are	e the	Elec	tro	ns in	an Atom Arranged?							
	Orbital Box Electron Configurations Worksheet.														
Gp		#e	1s	2s	2p	3s	Зр	Electronic Configuration	Noble Gas	Valence	Lewis Dot				
1A	н	1	↑					<u> </u> 5'	ls'	1	н•				
8A	He	2 ([)					ls²	\5 ²	2	He				
								A							
1A	Li	3		┢				3 <mark>15¹25'</mark>	[He] 25'		Li•				
2A	Be	4						15 ² 25 ²	[He]252	2	Be				
3A	в	5							[He] 25 ² 2p1	3	В				
4A	с	62						15 ² 25 ² 2p2	[He] 2522p2	ų	C				
5A	Ν	7						15 ² 25 ² 29 ³	[He] 2522p3	5	N				
6A	0	8						15 25° 2P4	[He] 252 2p4	6	0				
7A	F	9						15 ² 25 ² 2p ⁵	[He]2522P5	Г	F				
8A	Ne	10							[He] 2522p6	8	Ne				

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2.6		How Are the Electrons in an Atom Arranged?													
	Electron Configurations Worksheet.														
Gp		#e	1s	2s	2p	3s	3p	Electronic Configuration	Noble Gas	Valence	Lewis Dot				
1A	Na	11			NNN	↑		15 25 20 35'	[Ne] 3s'	1	Na•				
2A	Mg	12		N				15125120 352	[Ne] 352	2	Mg				
3A	AI	13			NNN			1522226 352 3pl	[Ne] 352 3P1	3	AI				
4A	Si	14		₽	NNN		$\uparrow \uparrow$	15 25 2P 35 3P2	[Ne] 35 ² 3p ²	ц	Si				
5A	Ρ	15					$\uparrow \uparrow \uparrow$	<mark>\s`2\$`2?[°]35` 3p³</mark>	[Ne] 35° 3P ³	5	P				
6A	s	16			NNN			15252p 352 3p4	[Ne]35 ² 39 ⁴	6	S				
7A	CI	17		\mathbb{N}		N		-15-25-29 ⁶ 35- 39 ⁵	[Ne] 35 ² 39 ⁵	٦	CI				
8A	Ar	18			NNN				[Ne]3523P6	8	Ar				

2.6 H	How Are the Electrons in an Atom Arranged?											
()	Pauli :	Maximum of two electrons per orkital.										
(2)	Humd :	Orkitals on the same level are filled singly first,										
		then they are pained up.										
3	Noble Gas Electrons											
		in any chemistry under normal circumstances.										
(f)	Valence Electrons:	For Main Group elements the total number of electrons										
		occupying the highest n valued or latals.										
		occupying the highest n valued or kitals. $\Rightarrow I : IKr] 55^2 4d^{10}5p^5 7 Valence electrons$										
		✓ X ✓										
		b b b b c										

.6			the El n Meta		ns in	an At	om A	rrange	ed?	4s 4p
										$3p = 6$ $3p = 6$ $18e^{-} = [Ar]$ $2p = 6$ Orbital Stainway
21 Sc Scandium 44.9559	22 Ti ^{Titanium} 47.88	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.9380	26 Fe Iron 55.847	27 Co Cobalt 58.9332	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.39	2p = 0rbital Stairway $2s \frac{\lambda}{1s \frac{\lambda}{2s}}$
								See d	ass he	eb site to check on these predictions
	21	Sc :	EAr]45 ² 3	9,				/	•
	22	Ti :	EAr] 45 3	12					
	23	N :	EAr] 45° 3	d ³					
	24	Cr:	C Br] 45°3	d4				X	actual : [Ar] 45'3d5
	25	Mn :	- CA	-] 45²3	92 (7 Pred	icted	,	(
	26	Fe	Eð	r] 45²3	qe			•	/	
	27	: <mark>م</mark>	[A	r] 45 ² 3	47			V	/	
	28	Nı:	LU	r] 45 ² 3	48			•		
	29	Cu :	[A	r]45°3	⁹ bd					actual : [Ar] 45' 3d'0
	30	Zn :	EA	r]45 ² 3	d ¹⁰			••••••		

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2.	6	Ho	w A	re t	he Eleo	ctro	ons in ai	n Atom Arranged?			
1A	Li	3	↑↓	↑				<mark>1s²</mark> 2s ¹	[He]2s ¹	1	ы.
2A	Be	4	↑↓	↑↓				1s ² 2s ²	[He]2s ²	2	Be ;
ЗA	в	5	↑↓	↑↓	↑ I			<mark>1s²</mark> 2s²2p¹	[He]2s ² 2p ¹	3	Ŕ;
4A	с	6	↑↓	↑↓	\uparrow \uparrow			<mark>1s²</mark> 2s²2p²	[He]2s ² 2p ²	4	·ċ:
5A	Ν	7	↑↓	↑↓	$\uparrow \uparrow \uparrow$			<mark>1s²</mark> 2s²2p³	[He]2s ² 2p ³	5	·Ņ:
6A	0	8	↑↓	↑↓	↑↓ ↑ ↑			<mark>1s²</mark> 2s²2p⁴	[He]2s ² 2p ⁴	6	-ö:
7A	F	9	↑↓	↑↓	↑↓ ↑↓ ↑			<mark>1s²</mark> 2s²2p⁵	[He]2s ² 2p ⁵	7	iř.
8A	Ne	10	↑↓	↑↓	↑↓ ↑↓ ↑↓			<mark>1s²</mark> 2s²2p ⁶	[He]2s ² 2p ⁶	8	:Ne:
				а н н а							h.
1A	Na	11	↑↓	↑↓	↑↓ ↑↓ ↑↓	î		<mark>1s²2s²2p⁶3s¹</mark>	[Ne] 3s ¹	1	Na-
2A	Mg	12	↑↓	↑↓	↑↓ ↑↓ ↑↓	↑↓		<mark>1s²2s²2p⁶</mark> 3s²	[Ne] 3s ²	2	Mg
ЗA	AI	13	↑↓	↑↓	↑↓ ↑↓ ↑↓	↑↓	Ŷ	<mark>1s²2s²2p⁶3s²3p¹</mark>	[Ne] 3s ² 3p ¹	3	AÌ;
4A	Si	14	↑↓	↑↓	↑↓ ↑↓ ↑↓	↑↓	↑ ↑	<mark>1s²2s²2p⁶3s²3p²</mark>	[Ne] 3s ² 3p ²	4	·si:
5A	Ρ	15	↑↓	↑↓	↑↓ ↑↓ ↑↓	↑↓	\uparrow \uparrow \uparrow	<mark>1s²2s²2p</mark> ⁶ 3s²3p³	[Ne] 3s ² 3p ³	5	• •
6A	s	16	↑↓	↑↓	↑↓ ↑↓ ↑↓	↑↓	↑↓ ↑ ↑	<mark>1s²2s²2p</mark> ⁶ 3s²3p ⁴	[Ne] 3s ² 3p ⁴	6	-\$1
7A	CI	17	↑↓	↑↓	↑↓ ↑↓ ↑↓	↑↓	↑↓ ↑↓ ↑	<mark>1s²2s²2p⁶3s²3p⁵</mark>	[Ne] 35 ² 3p ⁵	7	ដោ
8A	Ar	18	↑↓	↑↓	↑↓ ↑↓ ↑↓	↑↓	↑↓ ↑↓ ↑↓	<mark>1s²2s²2p</mark> 63s²3p6	[Ne] 3s ² 3p ⁶	8	: 茶 :