

Announcements – Lecture VI– Thursday, Sep 20th

Lonely Clickers

No Name!

803BE05B

8209901B

827AB54D

~~**887424D8**~~

8894FFE3



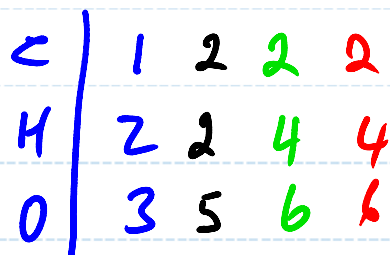
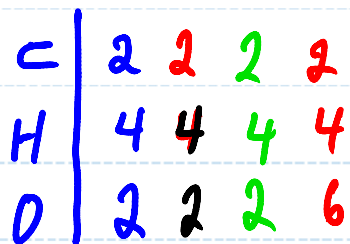
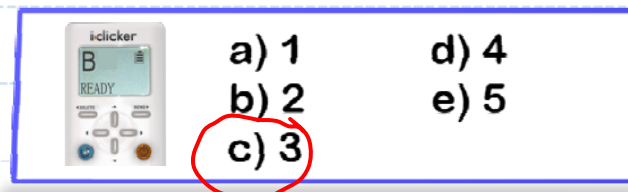
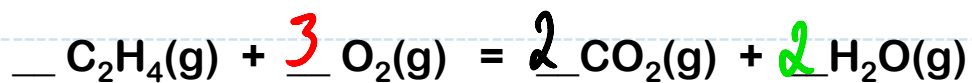
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First LAB ... Sat Sept 22ND, 1-4pm, ISB 155/160

- a) Purchase Safety Glasses
- b) Print Lab ... pdf version (contains the Data Sheet)
- c) Read Lab Policy
- d) Read Lab Safety
- e) Check out sample pre-lab quiz questions on class web site.

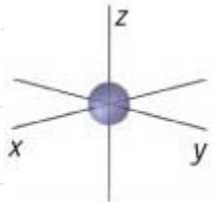
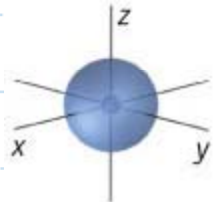
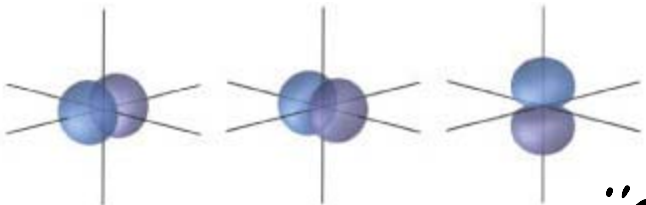
4.4 How Do We Balance Chemical Equations? Example 4

When the following chemical equation is balanced, the coefficient in front of the oxygen is:



2.6 How Are the Electrons in an Atom Arranged?

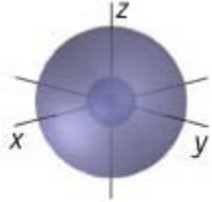
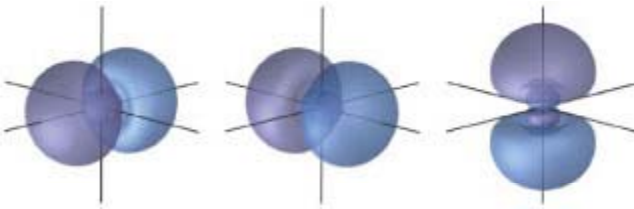
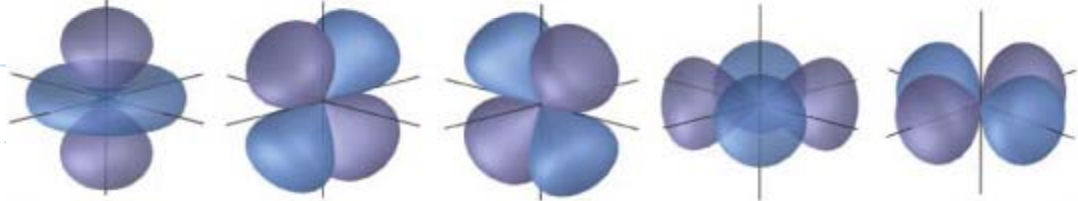
A Orbital Shapes

n	Orbitals		#	Label
1	1		1	1s
2	4		1	2s
		 "Egg timers"	3	2p



2.6 How Are the Electrons in an Atom Arranged?

A Orbital Shapes

n	Orbitals		#	Label
		 <p>Sphere</p>	1	3s
3	9	 <p>'egg timers'</p>	3	3p
		 <p>!</p> <p>'4 leaf clover'</p>	5	3d

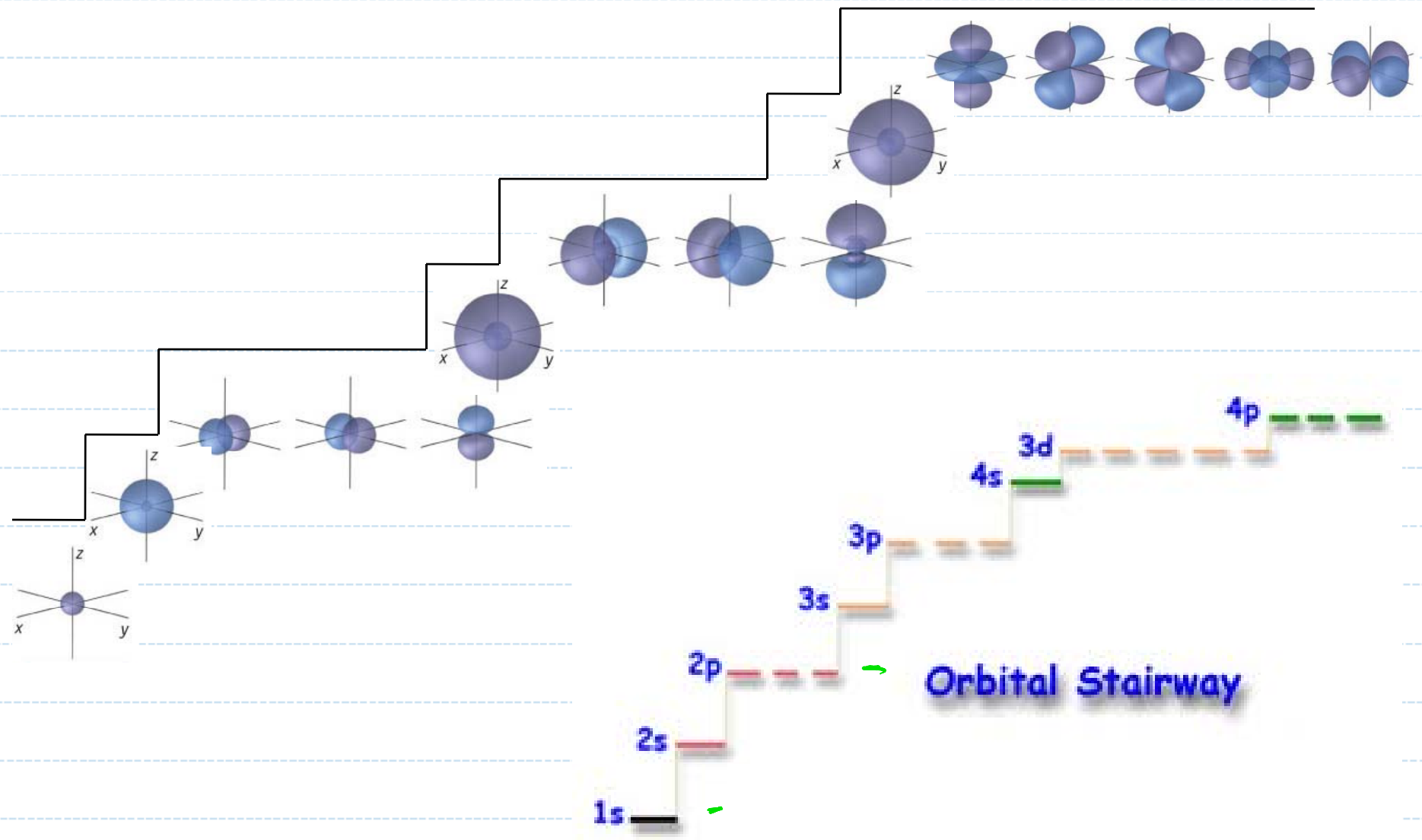
2.6 How Are the Electrons in an Atom Arranged? A Summary

n	TOTAL		TYPE	NUMBER
1	1		1s	1
2	4	[]	2s	1
			2p	3
3	9	[]	3s	1
			3p	3
			3d	5
4	16	[]	4s	1
			4p	3
			4d	5
			4f	7



2.6 How Are the Electrons in an Atom Arranged?

A Orbital Stairway





2.6 How Are the Electrons in an Atom Arranged?

Electron Configurations Worksheet.

ORBITAL BOX

Gp		#e	1s	2s	2p	3s	3p	Electronic Configuration	Noble Gas	Valence	Lewis Dot
1A	H	1	↑					$1s^1$			H
8A	He	2 ^①	↑↓					$1s^2$			He
1A	Li	3	↑↓	↑				$1s^2 2s^1$ ^③			Li
2A	Be	4	↑↓	↑↓				$1s^2 2s^2$			Be
3A	B	5	↑↓	↑↓	↑			$1s^2 2s^2 2p^1$			B
4A	C	6 ^②	↑↓	↑↓	↑ ↑			$1s^2 2s^2 2p^2$			C
5A	N	7	↑↓	↑↓	↑ ↑ ↑			$1s^2 2s^2 2p^3$			N
6A	O	8	↑↓	↑↓	↑↓ ↑ ↑			$1s^2 2s^2 2p^4$			O
7A	F	9	↑↓	↑↓	↑↓ ↑ ↑ ↑			$1s^2 2s^2 2p^5$			F
8A	Ne	10	↑↓	↑↓	↑↓ ↑↓ ↑↓			$1s^2 2s^2 2p^6$			Ne



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	↑↓	↑↓	↑↓↑↓↑↓	↑		$1s^2 2s^2 2p^6 3s^1$			Na
2A	Mg	12	↑↓	↑↓	↑↓↑↓↑↓	↑↓		$1s^2 2s^2 2p^6 3s^2$			Mg
3A	Al	13				↑↓	↑	$1s^2 2s^2 2p^6 3s^2 3p^1$			Al
4A	Si	14				↑↓	↑↑	$1s^2 2s^2 2p^6 3s^2 3p^2$			Si
5A	P	15				↑↓	↑↑↑	$1s^2 2s^2 2p^6 3s^2 3p^3$			P
6A	S	16				↑↓	↑↓↑↑	$1s^2 2s^2 2p^6 3s^2 3p^4$			S
7A	Cl	17				↑↓	↑↓↑↓↑	$1s^2 2s^2 2p^6 3s^2 3p^5$			Cl
8A	Ar	18				↑↓	↑↓↑↓↑↓	$1s^2 2s^2 2p^6 3s^2 3p^6$			Ar





2.6 How Are the Electrons in an Atom Arranged?

1. **PAULI** Maximum of 2 electrons per orbital
2. **HUND** Orbitals on the same level are filled singly first, then they are paired up

