

## Announcements – Lecture VII – Tuesday, Sep 27<sup>th</sup>

1. Exam I – Thursday, October 6<sup>th</sup> – In Class
2. Second Lab – Saturday, October 1<sup>st</sup> ... 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*

## 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:



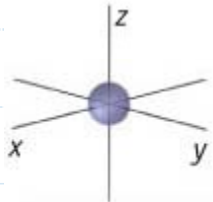
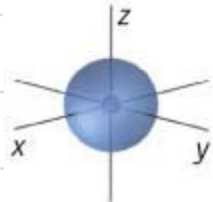
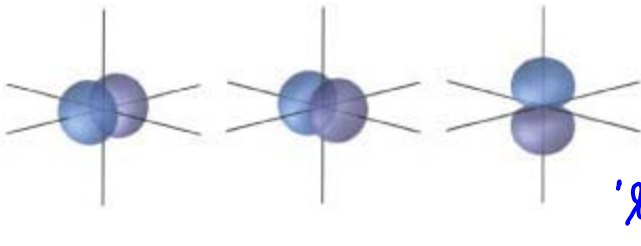
- a) 1
- b) 2
- c) 3 ✓
- d) 4
- e) 5

C		2	2	2	2
H		4	4	4	4
O		2	2	2	6
					✓

C		1	2	2	2
H		2	2	4	4
O		3	5	6	6
					✓

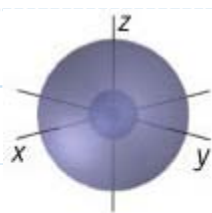
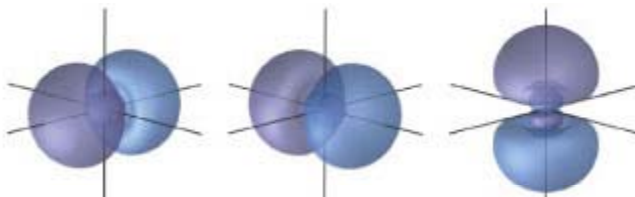
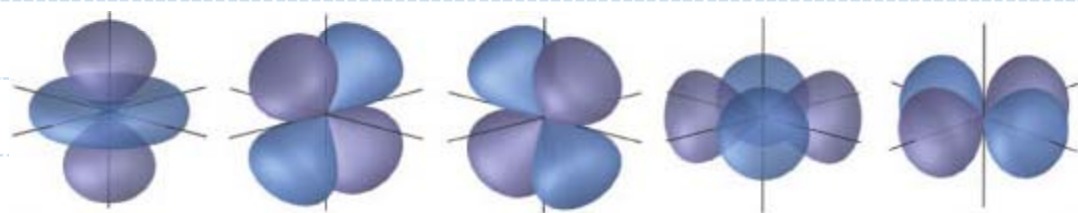
## 2.6 How Are the Electrons in an Atom Arranged?

### A Orbital Shapes

n	Orbitals		#	Label
1	1		1	1s
2	4		1	2s
			3	2p

## 2.6 How Are the Electrons in an Atom Arranged?

### A Orbital Shapes

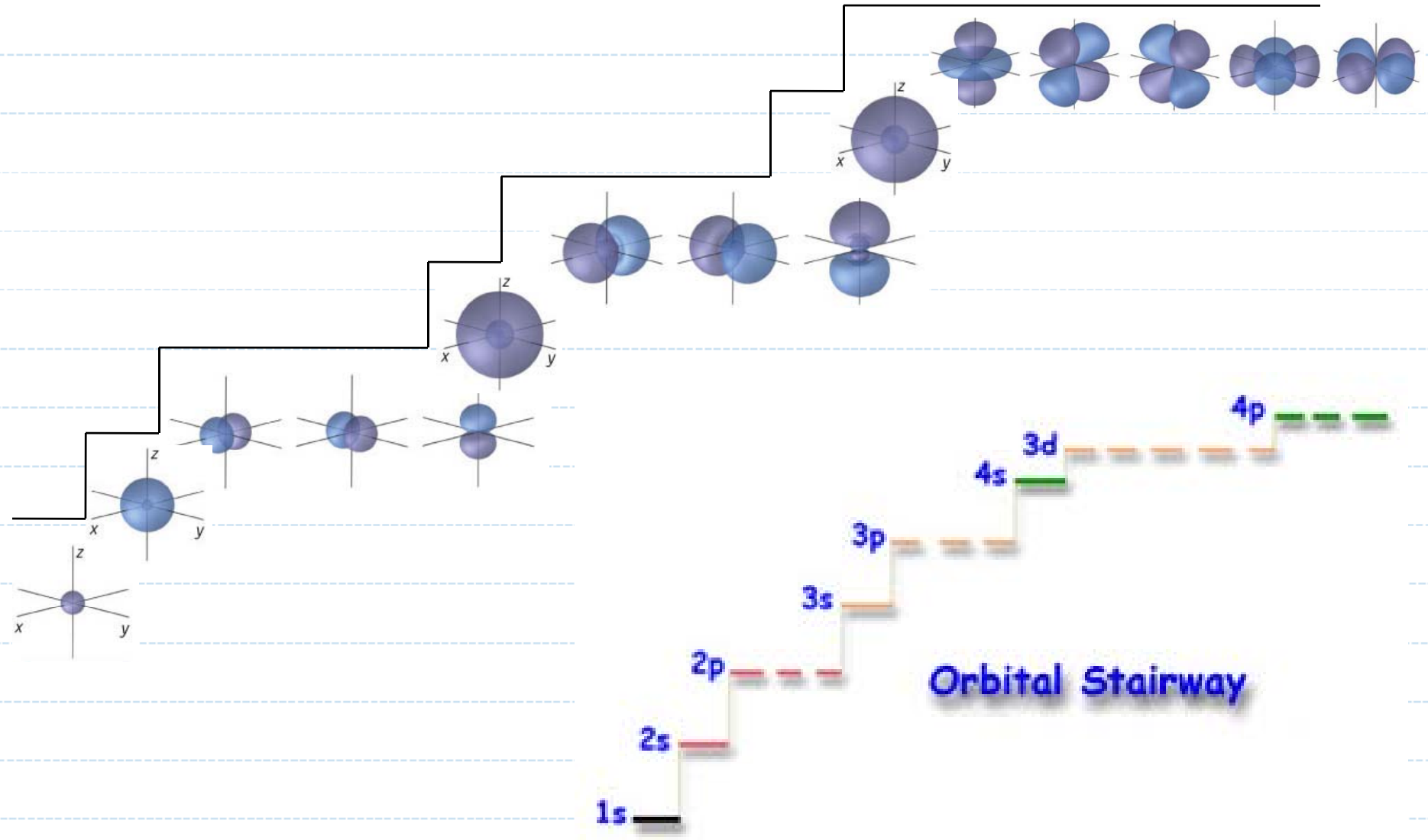
n	Orbitals		#	Label
				
		Sphere	1	3s
3	9		3	3p
		'egg timer'		
			5	3d
		4 leafed clover		

## 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?

### Orbital Box Electron Configurations Worksheet.

Gp		#e	1s	2s	2p	3s	3p	Electronic Configuration	Noble Gas	Valence	Lewis Dot
1A	H	1	↑					1s <sup>1</sup>			H
8A	He	2 ①	↑↓					1s <sup>2</sup>			He
1A	Li	3	↑↓	↑				1s <sup>2</sup> 2s <sup>1</sup>			Li
2A	Be	4	↑↓	↑↓				1s <sup>2</sup> 2s <sup>2</sup>			Be
3A	B	5	↑↓	↑↓	↑			1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>1</sup>			B
4A	C	6 ②	↑↓	↑↓	↑↑			1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>2</sup>			C
5A	N	7	↑↓	↑↓	↑↑↑			1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>3</sup>			N
6A	O	8	↑↓	↑↓	↑↓↑↑			1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>4</sup>			O
7A	F	9	↑↓	↑↓	↑↓↑↑↑			1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>5</sup>			F
8A	Ne	10	↑↓	↑↓	↑↓↑↓↑↓			1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>6</sup>			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	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow$		$1s^2 2s^2 2p^6 3s^1$			Na
2A	Mg	12	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow\downarrow$		$1s^2 2s^2 2p^6 3s^2$			Mg
3A	Al	13	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow$	$1s^2 2s^2 2p^6 3s^2 3p^1$			Al
4A	Si	14	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\uparrow$	$1s^2 2s^2 2p^6 3s^2 3p^2$			Si
5A	P	15	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\uparrow\uparrow$	$1s^2 2s^2 2p^6 3s^2 3p^3$			P
6A	S	16	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\uparrow$	$1s^2 2s^2 2p^6 3s^2 3p^4$			S
7A	Cl	17	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow$	$1s^2 2s^2 2p^6 3s^2 3p^5$			Cl
8A	Ar	18	$\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$\uparrow\downarrow$	$\uparrow\downarrow\uparrow\downarrow\uparrow\downarrow$	$1s^2 2s^2 2p^6 3s^2 3p^6$			Ar

