REVIEW

Chapter 5 : Lesson 5B

1. Match up the concept with the correct definition :

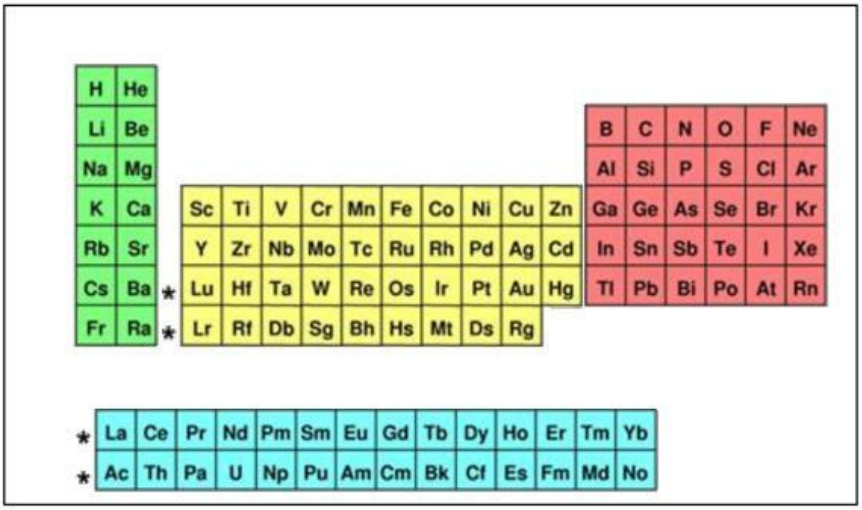
Bohr Model	3-dimensional regions or areas of highest probability around the nucleus of an atom where Electrons are most likely to be found
Heisenberg Uncertainty Principle	Electrons orbit the nucleus in distinct Energy Levels that are at increasing distances from the nucleus
Orbitals	Electrons are found in Orbitals (high probability 3D areas) rather than in distinct Energy Levels
Quantum Mechanical Model	It is impossible to know both the Energy and the exact position of an Electron at the same time
Aufbau Principle	Electrons will fill up the lowest available Energy Orbitals first before any can be placed in higher Orbitals. Order : s, p, d, f.

2. Fill in the blank spaces to correctly complete the statements :

The Main Energy Levels (n=1 to 7) corresponds with the 7 _____ on the Periodic Table. For example :

Magnesium is in Period _____ on the Periodic Table and therefore has _____ Main Energy Levels.

Within these Main Energy Levels, you will find Sub-Levels that correspond with "blocks" on the Periodic Table:



Within these "blocks" or Sub-Levels, you will find the following Orbitals :

Sub-Levels **s** (Block s) can contain only _____ spherical _____ - Orbital that can hold a maximum of _____ Electrons.

Sub-Levels **p** (Block p) can contain up to _____ dumbbell-shaped _____ - Orbitals that can hold a maximum of _____ Electrons.

Sub-Levels **d** (Block d) can contain up to _____ complex-shaped _____ -Orbitals that can hold a maximum of _____ Electrons.

Sub-Levels **f** (Block f) can contain up to _____ complex-shaped _____ - Orbitals that can hold a maximum of _____ Electrons.

3. **Complete the table below :**

Principal Energy Level	Type of Sublevel	#Orbitals	Max #Electrons
n = **1**			**2**
n = **2**	s	1	
n = **3**	s		
	p		
n = **4**	s		
	p		
	d		
n = **5**	s	1	
	p	3	
	d	5	
	f	7	
n = **6**			
n = **7**			

4. Use the following 4 Steps (to the right) to help you build up a "diagram" for using the Aufbau Principle (Diagonal Rule) :

STEPS :

1. Write the **7 Energy Levels** top to bottom.
2. Write the **Orbitals in s, p, d, f order.** Write the same number of Orbitals as the Energy Level (also top to bottom).
3. Draw **diagonal lines** from the top right to the bottom left.
4. Follow the arrows to obtain the "filling order" .

5. Fill in the Orbital positions to indicate the correct Filling Order that Electrons follow. Fill up from left to right (some positions are already filled in for you) :

2s 4s 5d etc...