

CHEMISTRY LAB DATA SHEET

NAME _____

3-D MODEL QUANTUM NUMBER ACTIVITY: Electrons

PARTNER(S) _____

2. HYDROGEN

Number of electrons?	In which energy level is the electron found?	Describe energy of energy level	Proximity of energy level to nucleus?	In which orbital is the electron found?	Shape of this orbital?	Describe the PATH of the electron

What is the *Aufbau Principle*?

3. HELIUM

Number of electrons?	In which energy level is the electron found?	In which orbital is the electron found?	Shape of this orbital?

Describe an electron pair.

Describe the spin of each electron in the electron pair.

What do laws of quantum mechanics tell us about how many electrons may be in each orbital?

State the *Pauli Exclusion Principle*.

4. LITHIUM

Number of electrons?	Energy level and orbital of two electrons with lowest energy?	Shape of that orbital?	Spins of those two electrons?	Energy level and orbital of the last electron?	Shape of that orbital?

5. BERYLLIUM

Number of electrons?	Energy level and orbital of first two electrons?	Describe the energy of those electrons	Energy level and orbital of remaining two electrons?	Which pair is closest to nucleus?

6. BORON

Number of electrons?	Energy level and orbital of two electrons with lowest energy?	Energy level of remaining three electrons?	Orbital of the 5 th electron?	Shape of this last orbital?	Total electrons that could be contained in p orbitals?

7. CARBON

Number of electrons?	Abbreviation of four electrons with lowest energy?	Energy level and orbital of remaining two electrons?	Shape of this last orbital?	Around which axis is each orbital located?	Number of electron pairs in carbon?

What is *Hund's Rule*?

8. Nitrogen

Number of electrons?	Abbreviation of four electrons with lowest energy?	Energy level and orbital of remaining three electrons?	Around which axis is each orbital located?

9. OXYGEN

Number of electrons?	Electron configuration for first 4 electrons	Electron configuration for remaining 4 electrons

Define valence level.

Define valence electrons.

10. FLUORINE

Number of electrons?	Electron configuration for fluorine	Valence Level?	Number of valence electrons?

11. NEON

Write the electron configuration for neon: _____

What is an octet?

What special property results from an atom having an octet?

13.

Atom	Electron Configuration	Valence Level	Number of Valence Electrons
Aluminum			
Sulfur			
Scandium			
Manganese			
Arsenic			
Krypton			
Rubidium			
Yttrium			
Iodine			
Platinum			

14.

Energy Level	# of sublevels	Type(s) of sublevels	# of orbitals	Maximum # of electrons
n = 1				
n = 2				
n = 3				
n = 4				
n = 5				

15.

Li

B

Fe

S