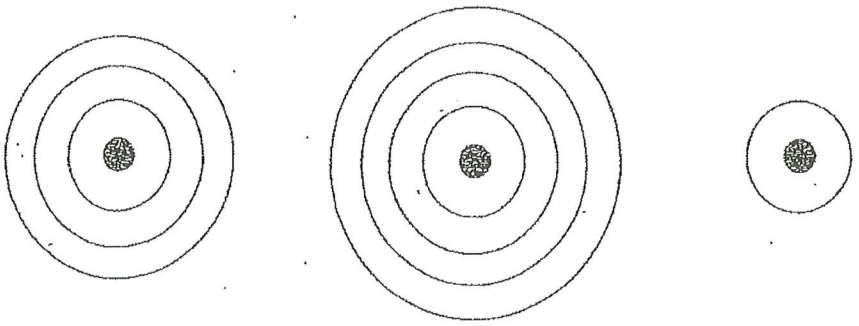
Bohr Model Practice Worksheet

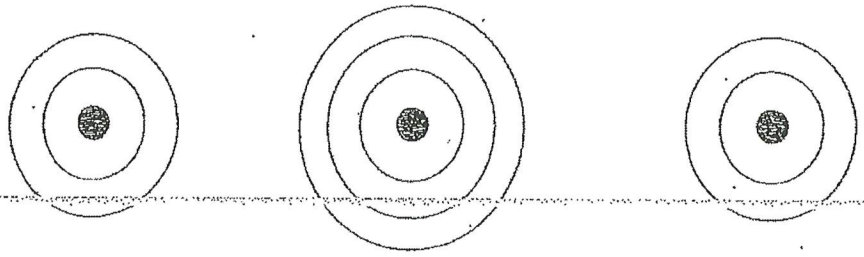
Name: _____
Date: _____
Period: _____

Bohr Model Practice

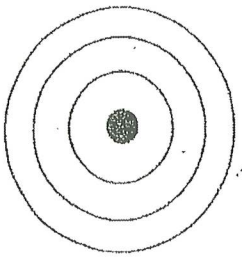
For each element, write the total number of electrons on the line. Then color the correct number of electrons for each orbit. Remember, fill the orbit closest to the nucleus first, but never exceed the number each orbit can hold. *Check the Periodic Table to find out how many electrons each element actually has.*

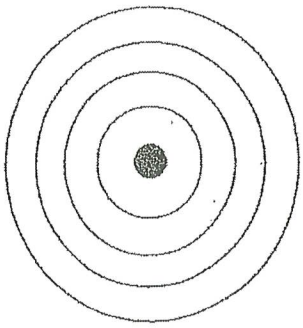


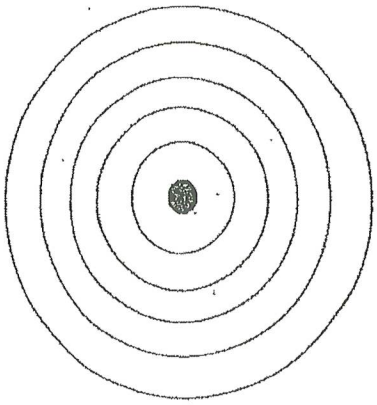
Sodium (Na) _____ Potassium (K) _____ Hydrogen (H) _____



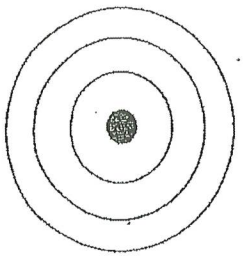
Carbon (C) _____ Silicon (Si) _____ Oxygen (O) _____

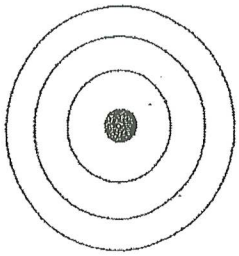


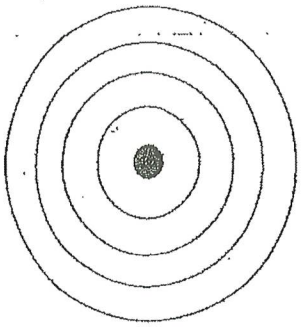




Chlorine (Cl) _____ Bromine (Br) _____ Iodine (I) _____





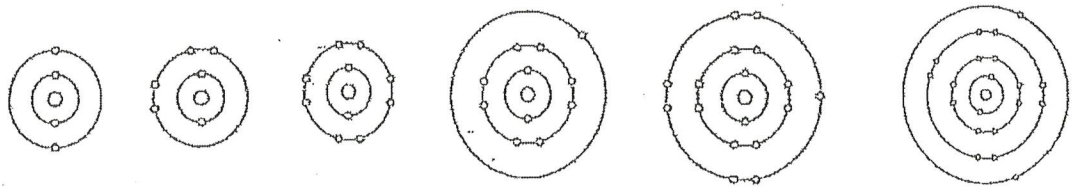


Argon (Ar) _____ Magnesium (Mg) _____ Calcium (Ca) _____

Now draw your own Bohr model diagrams for the following atoms:

Lithium (Li) _____ Sulfur (S) _____ Neon (Ne) _____

Identify the elements whose Bohr model diagrams are shown below. Write the names of the elements in the spaces provided.



(a) (b) (c) (d) (e) (f)

(a) _____

(b) _____

(c) _____

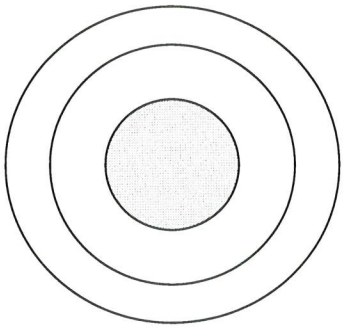
(d) _____

(e) _____

(f) _____

Atomic Basics Name _____

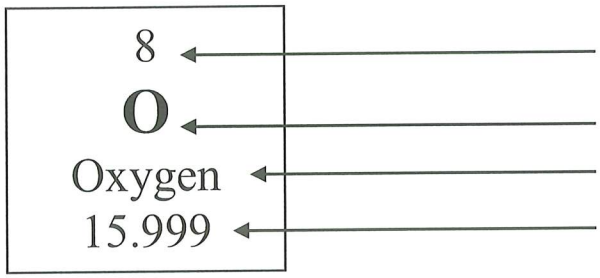
Part A: Atomic Structure



1. Draw five protons in the nucleus of the atom. Label them with their charge.
2. Draw six neutrons in the nucleus of the atom.
3. Draw two electrons in the first energy level and label them with their charge.
4. Draw three electrons in the second energy level and label them with their charge.
5. What element is represented by the diagram? _____

Part B: Atomic Calculations

6. Label the information provided in the periodic table.



7. What does the atomic number represent?

_____ or _____

8. What does the atomic mass represent?

_____ + _____

9. How would you figure the number of protons or electrons in an atom?

10. How would you figure the number of neutrons in an atom?

11. Use your knowledge of atomic calculations to complete the chart.

Element	Atomic Number	Atomic Mass	Protons	Neutrons	Electrons
Li	3	7			
P	15	31			
Cl		35	17		
Ni	28			31	
K		39			19
Ag	47			61	
H		1	1		
Si				14	14
W			74	110	
Ne				10	10

Part C: Electron Configuration

12. How many electrons can each level hold? 1st = _____ 2nd = _____ 3rd = _____

13. What term is used for the electrons in the outermost shell or energy level? _____

14. Scientists use two types of diagrams to show the electron configuration for atoms. Follow your teacher's directions to complete the diagrams.

Sulfur

Atomic # = 16

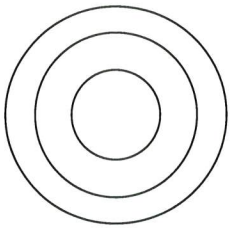
Atomic Mass = 32

Protons = ____

Neutrons = ____

Electron = ____

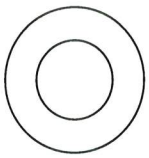
Bohr Diagram
Shows all electrons



Lewis Structure
Shows valence electrons

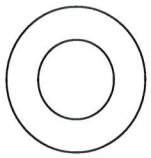
S

15. Calculate the missing information and then draw the Bohr Diagram and Lewis Structure for each element.



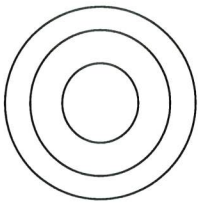
Li

Atomic # = 3
Mass # = 7
# of P = ____
# of N = ____
# of E = ____



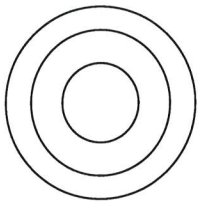
Ne

Atomic # = 10
Mass # = 20
# of P = ____
# of N = ____
# of E = ____



Mg

Atomic # = 12
Mass # = 24
# of P = ____
# of N = ____
# of E = ____

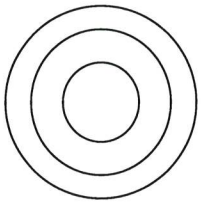


Cl

Atomic # = 17
Mass # = 35
# of P = ____
# of N = ____
# of E = ____

He

Atomic # = 2
Mass # = 4
# of P = ____
# of N = ____
# of E = ____



Si

Atomic # = 14
Mass # = 28
# of P = ____
# of N = ____
# of E = ____

16. Answer the questions below based on the elements in question #15.

(1) Which elements had a filled outermost shell? _____ _____

(2) Which element would be most likely to lose electrons in a chemical bond? _____

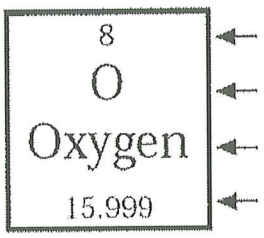
(3) Which element would be most likely to gain electrons in a chemical bond? _____

(4) Which elements are not likely to bond with other elements? _____ _____ Why? _____

Protons, Neutrons, and Electrons Practice Worksheet

Calculating the number of each particle in an atom:

Protons = Atomic Number
Electrons = Protons
Neutrons = Atomic Mass – Atomic Number ORBig # - Small



Use the periodic table to find the numbers of protons, neutrons, and electrons for atoms of the following elements.

Name of Element	Element Symbol	Mass Number	Atomic Number	Protons	Neutrons	Electrons
Boron	B	11	5	5	6	5
Sodium		24	11			
	Y	89				39
Copper			29		35	
	Tc	98		43		
	Pb	207				
Thallium		204	81			
	H				0	
Carbon		12				
	N			7		
	Ba					56
Calcium						
	Si					14
Argon			18			
	Mg			12		12

(6)

Name: _____ Block: _____

Protons, Neutrons, and Electrons Practice Worksheet

Atomic symbol	Atomic number	Protons	Neutrons	Electrons	Mass Number	Average Atomic Mass
B			6			
	11				24	
		31	37			
				39	89	
			35			63.5
		43			100	
Pb					207	
			102	70		
					225	227
Mo			53			
	81				206	
	100		159			
No					261	
Tm					170	
		106	159			
					22	20.2
				19	39	
	2		2			
Ti					49	
			30			55.8
		4	5			
				16	32	
V			28			

7

Element Names

Directions: Give the name for each of the element symbols below.

Symbol	Element
Ni	
Os	
F	
Ca	
Ba	
Pb	
I	
Ra	
Pt	
Pu	
Si	
Xe	