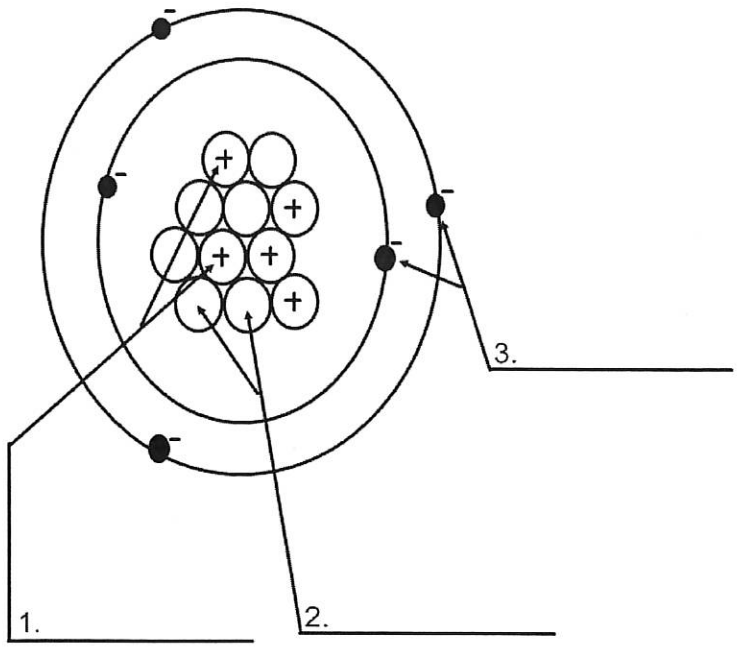
Name_____ Period_____

Atomic Structure Worksheet

Label the parts of an atom on the diagram below.



4. What type of charge does a proton have?

5. What type of charge does a neutron have?

6. What type of charge does an electron have?

7. Which two subatomic particles are located in the nucleus of an atom?

8. If an atom has 35 protons in the nucleus, how many electrons will it have orbiting the nucleus?

9. What is the atomic number of the atom in the diagram above?

10. What is the atomic mass/mass number of the atom in the diagram above?

11. How many protons are in the nucleus of an atom with an atomic number of 15?

12. How many electrons are in the nucleus of an atom with an atomic number of 20?

13. How many neutrons are in the nucleus of an atom with an atomic number of 25? (use Periodic Table for mass)

14. What is the mass number of an atom with 3 protons, 4 neutrons, and 3 electrons?

15. How many neutrons are in the nucleus of an atom that has an atomic mass of 36 and an atomic number of 25?

Bohr Model Drawing (25 points)

Draw a Bohr model of an **<u>oxygen</u>** atom in the space below. Be sure to place the electrons in the correct orbitals and to fill out the key for the subatomic particles.

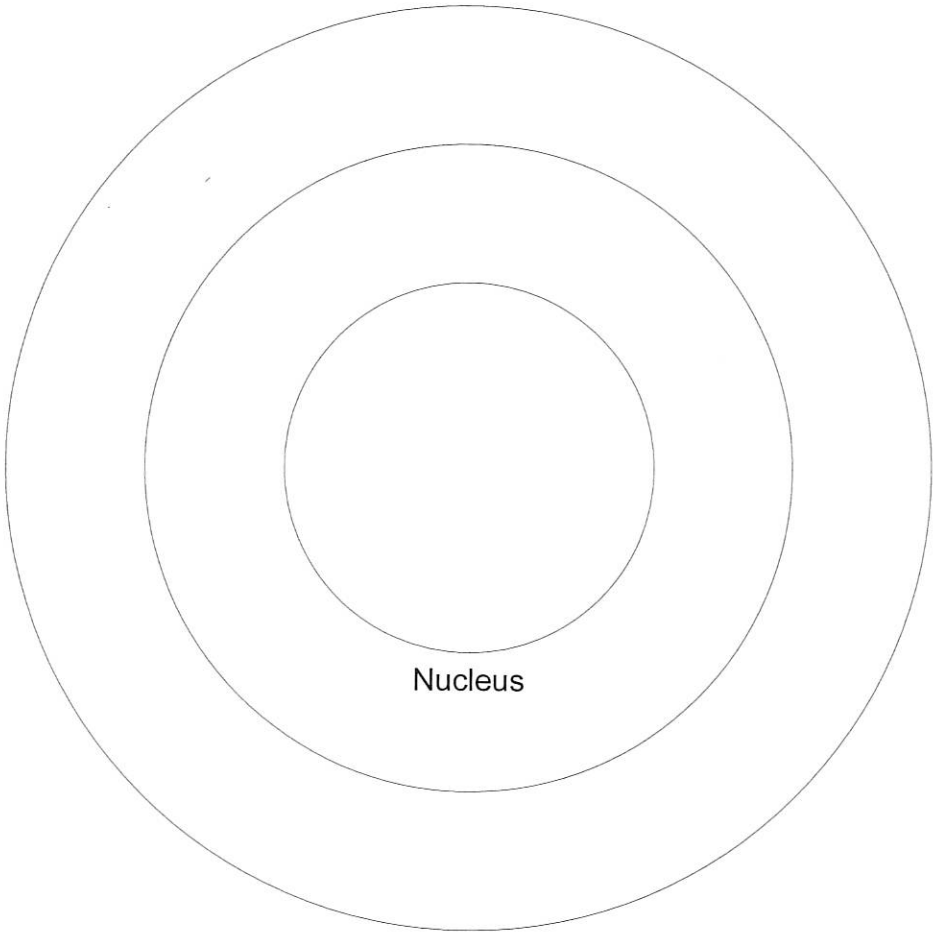
<u>Key</u>

Protons:

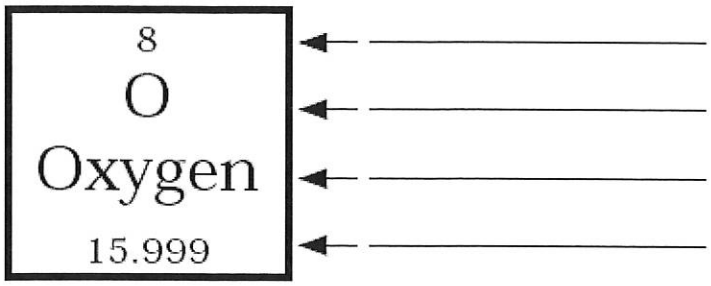
Neutrons:

Electrons:

8
O
Oxygen
15.9994



The Atoms Family
Atomic Math Challenge

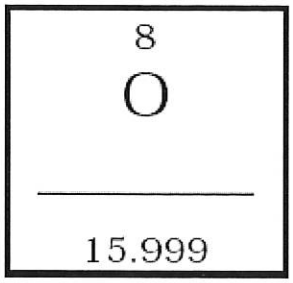


Atomic number equals the number of

_____ **or** _____

Atomic mass equals the number of

_____ + _____



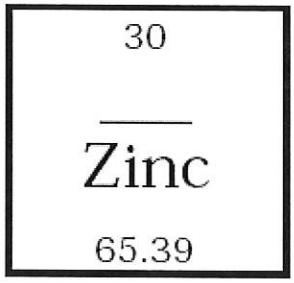
Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____



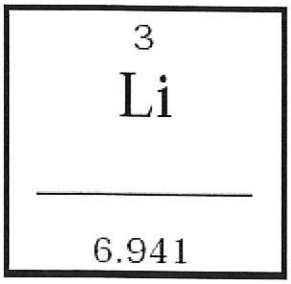
Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____



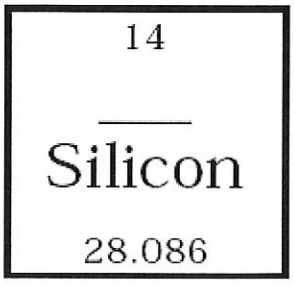
Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____



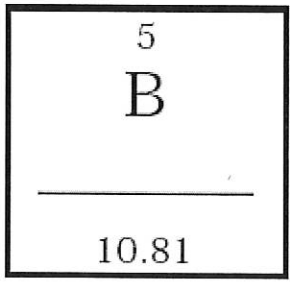
Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____



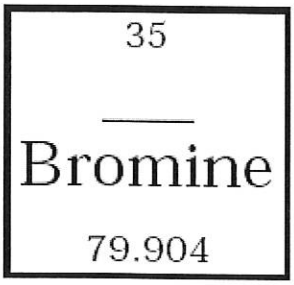
Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____



Atomic # = _____

Atomic Mass = _____

# of Protons = _____

# of Neutrons = _____

# of Electrons = _____

16 S _____ 32.06	53 _____ Iodine 126.905	25 Mn _____ 54.938
Atomic # = _____	Atomic # = _____	Atomic # = _____
Atomic Mass = _____	Atomic Mass = _____	Atomic Mass = _____
# of Protons = _____	# of Protons = _____	# of Protons = _____
# of Neutrons = _____	# of Neutrons = _____	# of Neutrons = _____
# of Electrons = _____	# of Electrons = _____	# of Electrons = _____
12 Mg _____ 24.305	18 _____ Argon 39.948	19 K _____ 39.098
Atomic # = _____	Atomic # = _____	Atomic # = _____
Atomic Mass = _____	Atomic Mass = _____	Atomic Mass = _____
# of Protons = _____	# of Protons = _____	# of Protons = _____
# of Neutrons = _____	# of Neutrons = _____	# of Neutrons = _____
# of Electrons = _____	# of Electrons = _____	# of Electrons = _____
79 _____ Gold 196.967	1 H _____ 1.008	9 _____ Fluorine 18.998
Atomic # = _____	Atomic # = _____	Atomic # = _____
Atomic Mass = _____	Atomic Mass = _____	Atomic Mass = _____
# of Protons = _____	# of Protons = _____	# of Protons = _____
# of Neutrons = _____	# of Neutrons = _____	# of Neutrons = _____
# of Electrons = _____	# of Electrons = _____	# of Electrons = _____

NAME _____ PERIOD _____ DATE _____

ATOMIC STRUCTURE

Directions: Become more familiar with the atomic structure of some common substances by completing the chart below. For each substance, you have been given enough information to fill in all the blanks.

Substance	Symbol	Atomic Number	Mass Number	Number of Protons	Number of Neutrons	Number of Electrons
Helium	He	2	4			
Magnesium	Mg	12			12	
Zinc		30	65			
Bromine	Br		80			35
Aluminum				13	14	
Uranium	U				146	92
Sodium	Na	11			12	
Krypton	Kr				48	36
Calcium			40	20		
Silver	Ag			47	61	

Calculating particles in the nucleus

Name _____ per. _____
Atomic mass = total number of particles in the nucleus
Atomic mass – atomic number = the number of neutrons

Complete the table

Element symbol	Atomic #	Atomic Mass	Number of Protons	Number of Neutrons	Number of Electrons
C		12	6	6	
Cu	29			35	
Pb	82	207			82
Xe	54	131			54
Tc			43	55	43
	12	24	12		
			77	115	
Li	3				3
Ra	88		88	138	
Co^{2+}	27				25
^{41}K					
^{12}N					
	73			110	73
			1		
			85		85
S					
Na					
			23		25
	7	8			
		238	92		94

Skittles and Atoms

Name: _____ **Group members:** _____ **Date:** _____

Directions:	**Skittle Colors:**
1. As a team you need your skittles, paper towels, items to make your drawings (if your group chooses to draw your answers). 2. Return to your seats. 3. Then as a group you need to separate your skittles into three different piles. 4. As a group decide what color skittle will represent your Protons **(P),** Electrons **(E)** and Neutrons **(N).** Write the colors you picked in the box next to this one. 5. Then you need to work as a team to build each of the following atoms on top of your paper towels. You then need to either draw them (in the box) or one member of your team needs to take a picture of your atoms on your phone. 6. Then you need to fill out how many Protons **(P),** Electrons **(E)** and Neutrons **(N)** are in each atom.	P= N= E=

27	12	2	17	8	3
Co Cobalt 58.9333	**Mg** Magnesium 24.305	**He** Helium 4.0026	**Cl** Chlorine 35.453	**O** Oxygen 15.999	**Li** Lithium 6.941
Drawing	**Drawing**	**Drawing**	**Drawing**	**Drawing**	**Drawing**
P= **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**

p97

Skittles and Atoms

Name: _____ **Group members:** _____ **Date:** _____

16	23	35	29	31	10
S sulfur 32.06	**V** Vanadium 50.941	**Br** Bromine 79.904	**Cu** Copper 63.546	**Ga** Gallium 69.72	**Ne** Neon 20.179
Drawing	**Drawing**	**Drawing**	**Drawing**	**Drawing**	**Drawing**
P= **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**	**P=** **N=** **E=**