

Name: _____

Period: _____

Atomic Structure and Notation

1. For each of the following chemical symbols complete the table

Symbol	Protons	Neutrons	Electrons	Elements Name
V				
Mn				
Ir				
S				

2. Composition of Various Isotopes

Isotope	Atomic #	Mass #	# of p ⁺	# of n ^o	# of e ⁻
		32	16		
				24	20
Zn-63					
	9			10	
	11	23			

3. Complete the following chart

	Electrons	Protons	Neutrons	Isotopes (yes or no)
Gallium-64				
Fluorine-23				
Titanium-48				
Helium-8				

4. Complete the following chart

	Electrons	Protons	Neutrons	Isotope (yes or no)
$^{132}_{55}\text{Cs}$				
$^{163}_{69}\text{Tm}$				
$^{70}_{30}\text{Zn}$				
$^{59}_{27}\text{Co}$				

5. Why is the number of protons in an atom just like your fingerprints? Explain

6. Iron has 26 protons. Predict what element you would have if you subtracted 3 electrons.

7. How many protons, electrons and neutrons does sulfur have if it has a -2 charge?

Ions Continued

Complete the following:

1. For each of the positive ions listed in column 1, use the periodic table to find in column 2 the total number of electrons that ion contains. The same answer may be used more than once.

___ 1. Al^{+3}	A. 2
___ 2. Fe^{+3}	B. 10
___ 3. Mg^{+2}	C. 21
___ 4. Sn^{+2}	D. 23
___ 5. Co^{+2}	E. 24
___ 6. Co^{+3}	F. 25
___ 7. Li^{+1}	G. 36
___ 8. Cr^{+3}	H. 48
___ 9. Rb^{+1}	I. 76
___ 10. Pt^{+2}	J. 81

Element/Ion	Atomic Number	Number of Protons	Number of Neutrons	Number of Electrons	Mass Number
${}^1_1\text{H}$					
${}^1_1\text{H}^+$					
${}^{35}_{17}\text{Cl}^-$					
${}^{24}_{12}\text{Mg}^{2+}$					
${}^{108}_{47}\text{Ag}^+$					
${}^{32}_{16}\text{S}^{2-}$					
		30		28	66
	76		114		

Answer the following questions:

1. Define an ion.
2. a. How can you tell if an atom has a negative charge? What type of Ion is this?

b. How can you tell if an atom has a positive charge? What type of ion is this?

ATOMIC STRUCTURE WORKSHEET

Complete the table. There is enough information given for each element to determine all missing numbers.

Symbol	Atomic Number	Mass Number	Number of Protons	Number of Electrons	Number of Neutrons
^{23}Na					
K		40		19	
			38	38	52
F					10
	20	41		18	
	50			50	72
^{131}I					
^{26}Mg					
		109	47	46	
	1	2		1	
^{36}S					
	26			23	32
^{27}Al					
	2	4		2	
Cr		53			