Name:_____ Block:_____ Date:_____

Chemistry 11 **Introduction to Atomic Theory** Assignment

1. Fill in the following chart to describe subatomic particles in an atom:

Subatomic Particle	Electric Charge	Location in the atom	Relative Mass

2. Complete the following table:

PARTICLE	ATOMIC NUMBER	MASS NUMBER	NUMBER OF PROTONS	NUMBER OF NEUTRONS	NUMBER OF ELECTRONS
$^{52}_{24}Cr$					
$^{222}_{86}Rn$					
	31			39	31
			13	14	13
		197		118	76
		75	33		36
			83	126	78
X^{2-} =				75	54
X^{3+} =		103			42
X^{3-} =	33			42	

3. Draw Bohr diagrams for the following atoms or ions:

a. O - 16

b. Cl^- - 35

c. Ne - 20

d. Na^+ - 23

4. Write the chemical symbol for:

    a. An ion with 12 protons, 10 electrons and 12 neutrons.

    b. An ion with 95 protons, 89 electrons and 148 neutrons.

    c. An ion with 33 protons, 42 neutrons and 36 electrons.

5. The following mixtures of isotopes are found in nature. Calculate the expected molar mass of a sample of each mixture and report the value to 2 decimal places.

    a. $^{10}B = 18.8\%$, $^{11}B = 81.2\%$

    b. $^{70}Ge = 20.5\%$, $^{72}Ge = 27.4\%$, $^{73}Ge = 7.8\%$, $^{74}Ge = 36.5\%$, $^{76}Ge = 7.8\%$

    c. $^{64}Zn = 48.9\%$, $^{66}Zn = 27.8\%$, $^{67}Zn = 4.1\%$, $^{68}Zn = 18.6\%$, $^{70}Zn = 0.6\%$

6. Natural sources of carbon contain 98.90% C-12 (mass = 12.000000 g/mol) and 1.10% C-13 (mass = 13.003355 g/mol). What is the molar mass of the mixture of carbon isotopes, expressed to 3 decimal places?

7. Use one word or phrase to summarize the contributions of each of the scientists in the chart below:

Early Greeks		James Chadwick	
Ernest Rutherford		J.J. Thomson	
Niels Bohr		Henry Moseley	
Medieval chemists		John Dalton	