Composition of the Atom

1. *Composition of the Atom.* Complete the following table on a separate sheet of paper.

	Nuclear Symbol	Number of Protons	Atomic Number	Number of Neutrons	Mass Number
a.	$^{12}_{6}C$				
b.		5		6	
c.			12	13	
d.			4		9

2. Complete the following table on a separate sheet of paper.

	Nuclear Symbol	Number of Protons	Number of Electrons	Number of Neutrons	Charge
a.	$^{16}_{8}O^{2-}$	8	10	8	-2
b.	$^{27}_{13}Al^{3+}$				
c.		12		12	+2
d.			18	19	-1

3. The atomic number of Li, F, Mg, and S are 3, 9, 12, and 16 in that order. Give the number of protons and electrons in the following ions.
   a. Li^{+} b. F^{-} c. Mg^{2+} d. S^{2-}

4. How does a Cl^{-} ion differ from a Cl atom?

5. Referring to the table of atomic masses, arrange the following atoms in order of decreasing mass: Al, B, Be

6. Consider the three particles: electron, proton, neutron.
   a. Which one is has the smallest mass?
   b. Which one is uncharged?
   c. Which one is found outside the nucleus?
   d. Which two have nearly the same mass?

7. Which of the following are isotopes?
   a. $^{2}_{1}H$ and $^{1}_{1}H$ b. $^{4}_{2}He$ and $^{4}_{3}Li$ c. $^{16}_{8}O$ and $^{16}_{8}O^{2-}$
   d. $^{14}_{7}N$ and $^{15}_{7}N$ e. $^{1}_{1}H^{+}$ and $^{1}_{1}H^{-}$