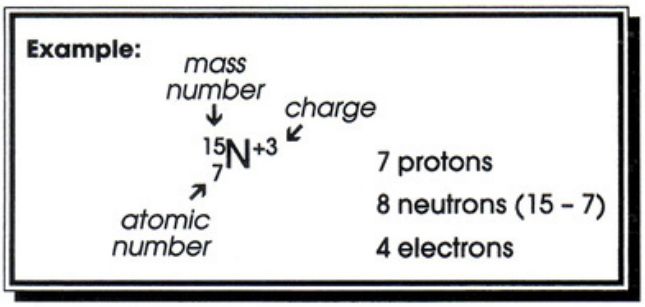
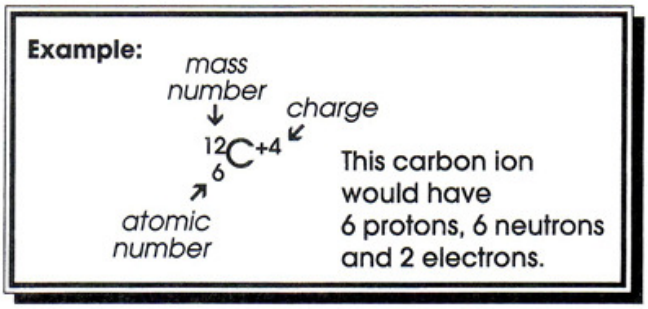
**Isotopes and Ions** Name_____Period_____

An ***isotope*** is an atom of the same element that has a different mass. This means that is has the same atomic number which is equal to the same number of protons. If an atom has a different mass, it can only be because it has more or less neutrons in the nucleus of the atom. Since it is an isotope with a different mass, you will have to be given the mass in isotope notation. *Being an isotope only affects the number of neutrons, and does not change the protons (atomic number) or the electrons (also atomic number).*

An ***ion*** is an atom (or group of bonded atoms) that has a positive or negative charge. The protons of an atom never change, so for an atom to have a charge and therefore be an ion it will change its number of electrons. *Atoms that gain electrons become more negatively charged and atoms that give electrons away become more positively charged.*

**How we write isotopes and ions:**




Complete the following chart, which contains atoms, isotopes, and ions.

| # | Symbol | Atomic # | Atomic Mass AKA Mass # | Protons | Neutrons | Electrons |
|---|---|---|---|---|---|---|
| 1. | $^{2}_{1}H$ | | | | | |
| 2. | $^{1}_{1}H^{+1}$ | | | | | |
| 3. | $^{14}_{6}C$ | | | | | |
| 4. | $^{7}_{3}Li^{+1}$ | | | | | |
| 5. | $^{35}_{17}Cl^{-1}$ | | | | | |
| 6. | $^{39}_{19}K$ | | | | | |

| # | Symbol | Atomic # | Atomic Mass<br>AKA Mass # | Protons | Neutrons | Electrons |
|---|---|---|---|---|---|---|
| 7. | $^{24}_{12}Mg^{2+}$ | | | | | |
| 8. | $As^{3-}$ | | | | | |
| 9. | $^{108}Ag^{+1}$ | | | | | |
| 10. | $S^{-2}$ | | | | | |
| 11. | $^{240}U$ | | | | | |
| 12. | $^{19}_{9}F^{-1}$ | | | | | |
| 13. | $Be^{+2}$ | | | | | |
| 14. | $^{88}Sr^{+2}$ | | | | | |
| 15. | $^{23}_{11}Na^{+}$ | | | | | |
| 16. | $^{81}Br^{-2}$ | | | | | |
| 17. | **Uranium-239** | | | | | |
| 18. | **Selenium-80** | | | | | |
| 19. | | | | 53 | 74 | 54 |
| 20. | | | 40 amu | 20 | | 18 |
| 21. | $^{16}_{8}—^{+2}$ | | | 8 | | |
| 22. | | | 244 amu | | 150 | |
| 23. | | | | 19 | 20 | 18 |