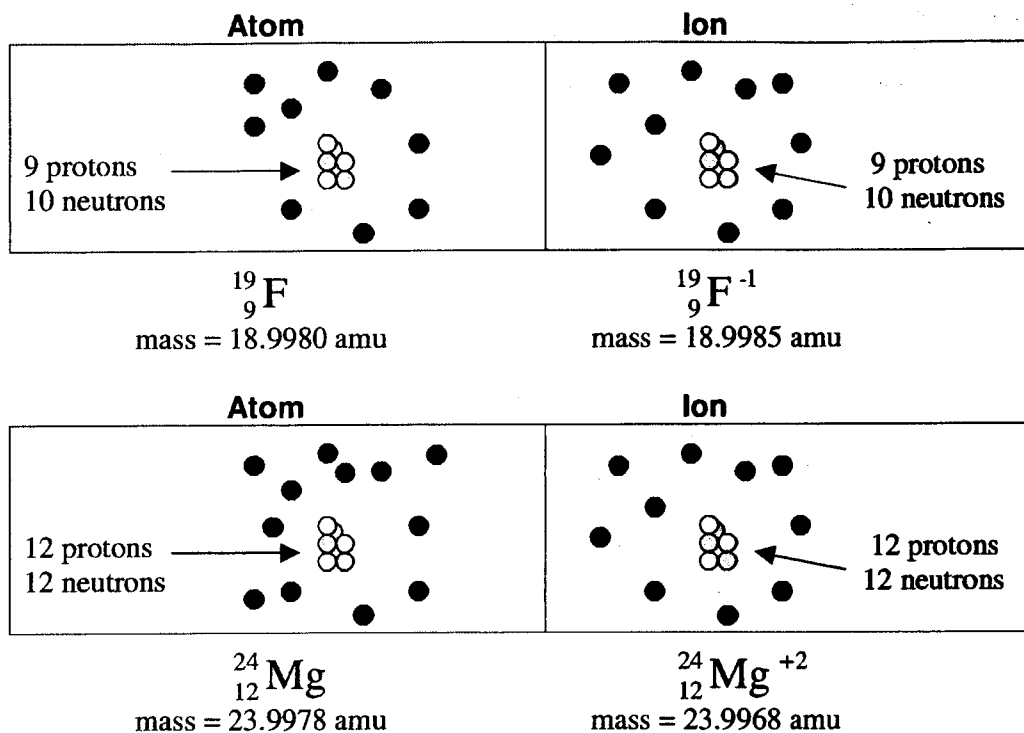


Information: Atoms, Ions, Masses of Subatomic Particles

The atomic mass unit (amu) is a special unit for measuring the mass of very small particles such as atoms. The relationship between amu and grams is the following: $1.00 \text{ amu} = 1.66 \times 10^{-24} \text{ g}$
 Note the following diagrams comparing atoms and ions.



Critical Thinking Questions

10. What is structurally different between an atom and an ion? Note: This is the **ONLY** structural difference between an atom and an ion.

11. In atomic mass units (amu), what is the mass of an electron?

12. Is most of the mass of an atom located in the nucleus or outside the nucleus? How do you know?

13. If protons and neutrons have the same mass, what is the approximate mass of a proton and neutron in atomic mass units (amu)?
14. The mass of ${}^{14}_6\text{C}$ is about 14 amu. Does this agree with what you determined in questions 11 and 13?
15. The charge (in the upper right hand corner of the element symbol) is -1 for a fluorine ion. Why isn't it $+1$ or some other number?
16. What is the charge on every atom? Why is this the charge?
17. How do you determine the charge on an ion?
18. An oxygen ion has a -2 charge. (Use your periodic table if necessary)
- How many protons does the oxygen ion have?
 - How many electrons does the oxygen ion have?