Electron: Outside of the nucleus - charge

mass: 9.1×10^{-28} g

Proton: In the nucleus + charge

mass: 1.673×10^{-24} g

0.000000000000000000000001673 g

Neutron: with the proton No Charge

in almost all nuclei

mass: 1.675×10^{-24} g

0.000000000000000000000001675 g

Relative mass

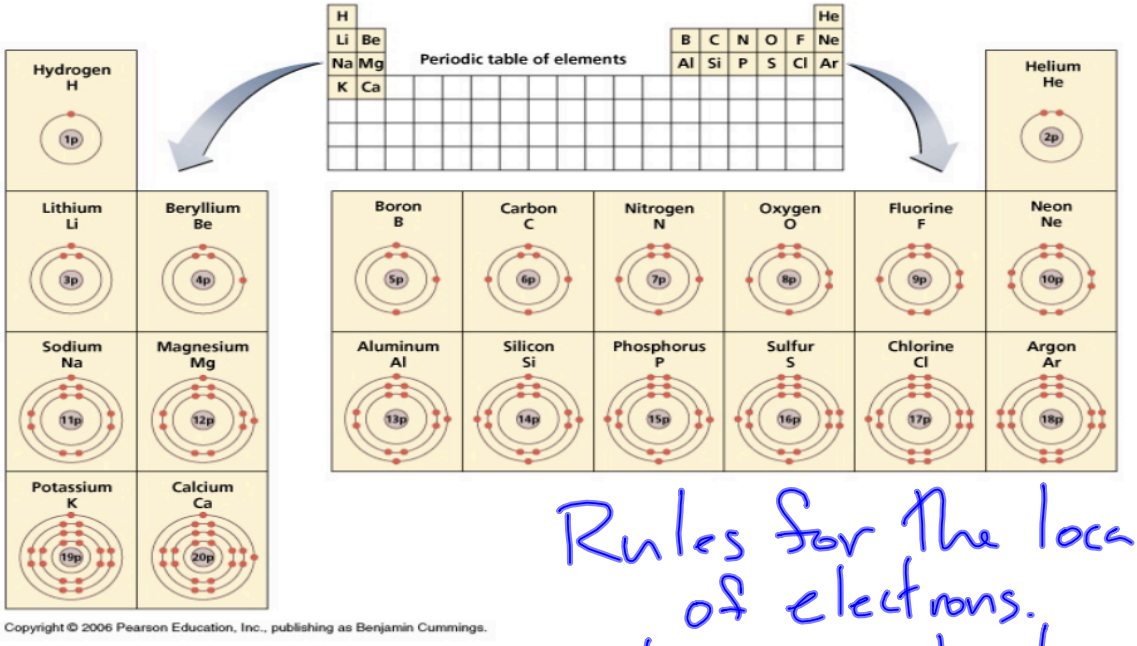
1

1836

1839

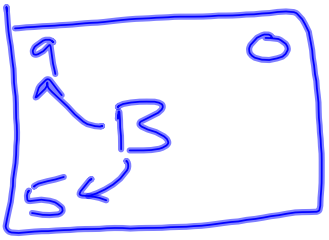
Does every proton need an electron?

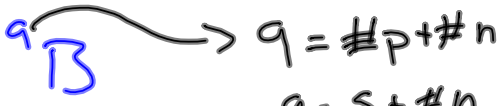
Electron Configuration: Where Electrons go

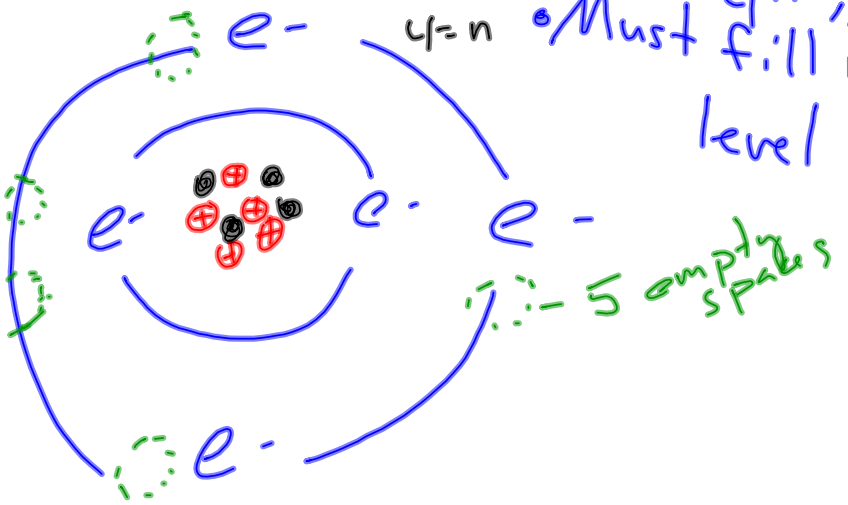


Rules for the location of electrons.

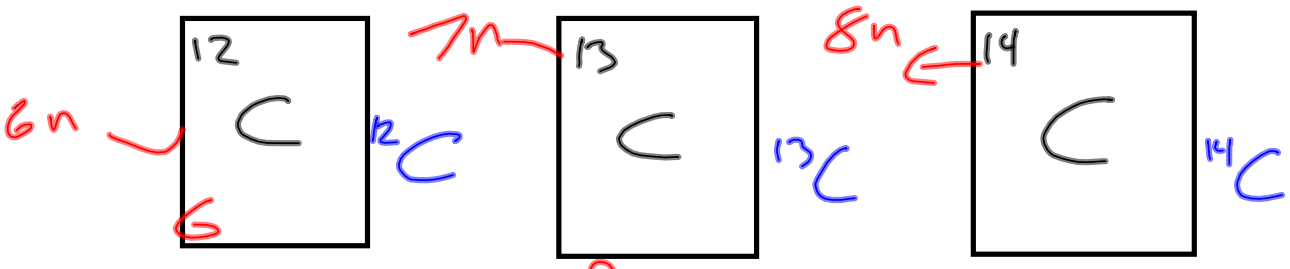
- each energy level can store a certain number of electrons
  - 1st energy level : 2 electrons
  - 2nd energy level : 8 electrons
  - 3rd energy level : 18 electrons
  - 4th " " : 18 electrons
- Must fill in inner energy level first







Isotopes: Atoms of one elements that have different mass numbers.



Same # of protons
Different #'s of neutrons

As the number of protons in an atom increases, the number of neutrons must increase in order to have a stable atom.

Ion: An atom with a net charge (positive or negative)

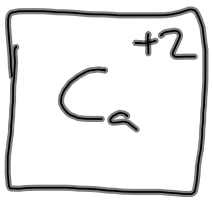
Different numbers of protons and electrons

Cats are great

Cations: Positively charged atom (Ion)
more protons than electrons

onions make you cry

Anions: Negatively charged Ions
more electrons than protons



Ca^{+2} O^{-1}

Atomic Mass

Average mass of all of the atoms of one element

Mass #

The mass of a particular Atom = # of protons + # of neutrons

$^{12.011}_{6}C$

$^{12}_{6}C$ $^{13}_{6}C$ $^{14}_{6}C$

mass # 31 neutrons = 16

Atomic # = ?

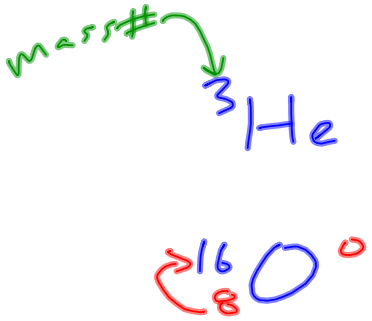
element = ?

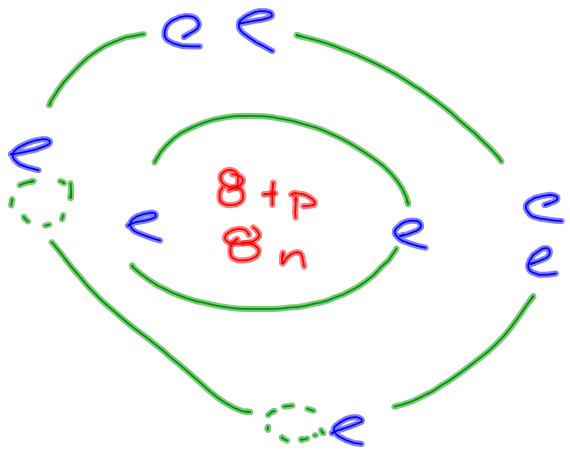
mass # = #p + #n

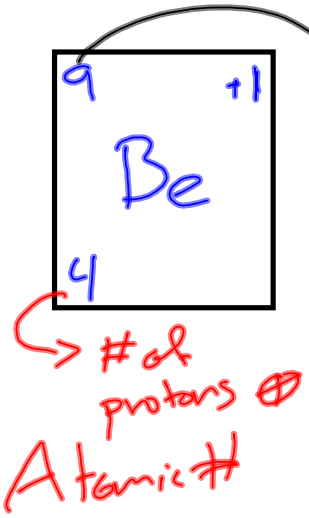
$31 - 16 = \#p + 16 - 16$

15 = #p : Phosphorus

Practice Drawing:







9 = p + n

9 = 4 + n

9 - 4 = n

5 = n