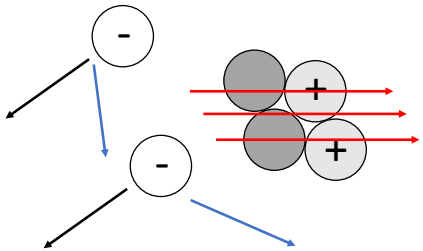
Forces in Atoms

Electrons and Protons Interact with Each Other

Motion of electrons (e^-) counteracts pull of protons (p^+)



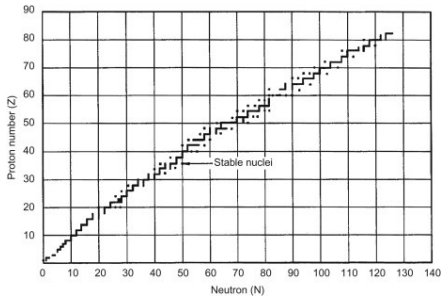
Electron Movement

In an atom the electron motion counteracts the pull of the protons to the center of the atom. The neutrons *shield* the electrons from the protons

2

Atomic Stability

Atomic Stability is based on ratio of protons : neutrons



Z-Ratio

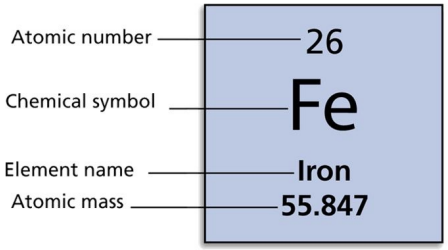
(*Z = Atomic Number*)

The ratio of protons to neutrons (p^+:n^o) in a stable atom ranges from 1:1 (*small atoms*) to 1:1.5 (*large atoms*)

3

Elements

The *atomic number* (Z, # protons, p^+) can be used to identify the type of element being studied on the periodic table



4

Isotopes

Atoms can commonly have more than one ratio of protons and neutrons that are stable. The equations below will help calculate the number of each subatomic particle in an isotope of an element

Atomic Number = # Protons (p^+) [*Type of Atom*]

 # Protons (p^+) = # Electrons (e^-) [*Atoms Neutral*]

Mass Number = # Protons + # Neutrons [*Isotope Mass*]

 # Neutrons (n^o) = Mass Number - Atomic Number

5