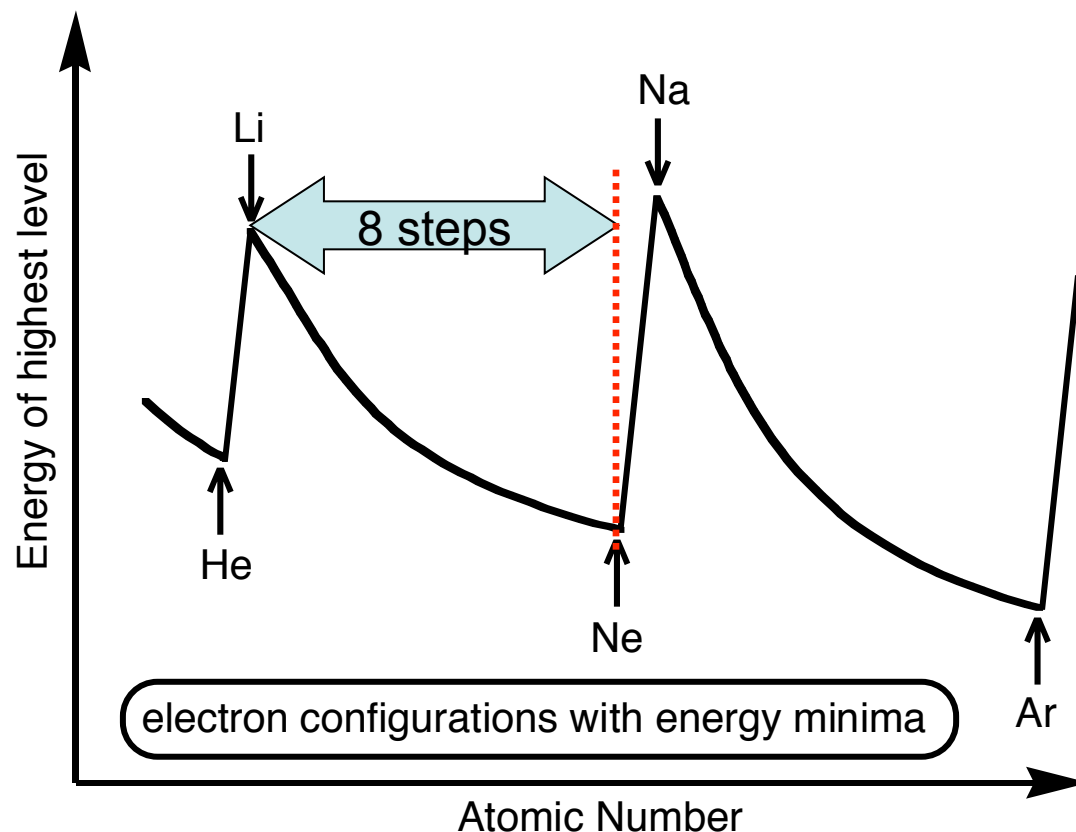


This plot shows how the energy levels for the first 18 elements in the periodic table change as a function of atomic number. The energy levels shown here are the result of computation based on modern atomic theory. Notice that the energy scale is logarithmic. For a complete description, see M. Kasha and R. Latter, *Phys. Rev.*, **1955**, 99, 510



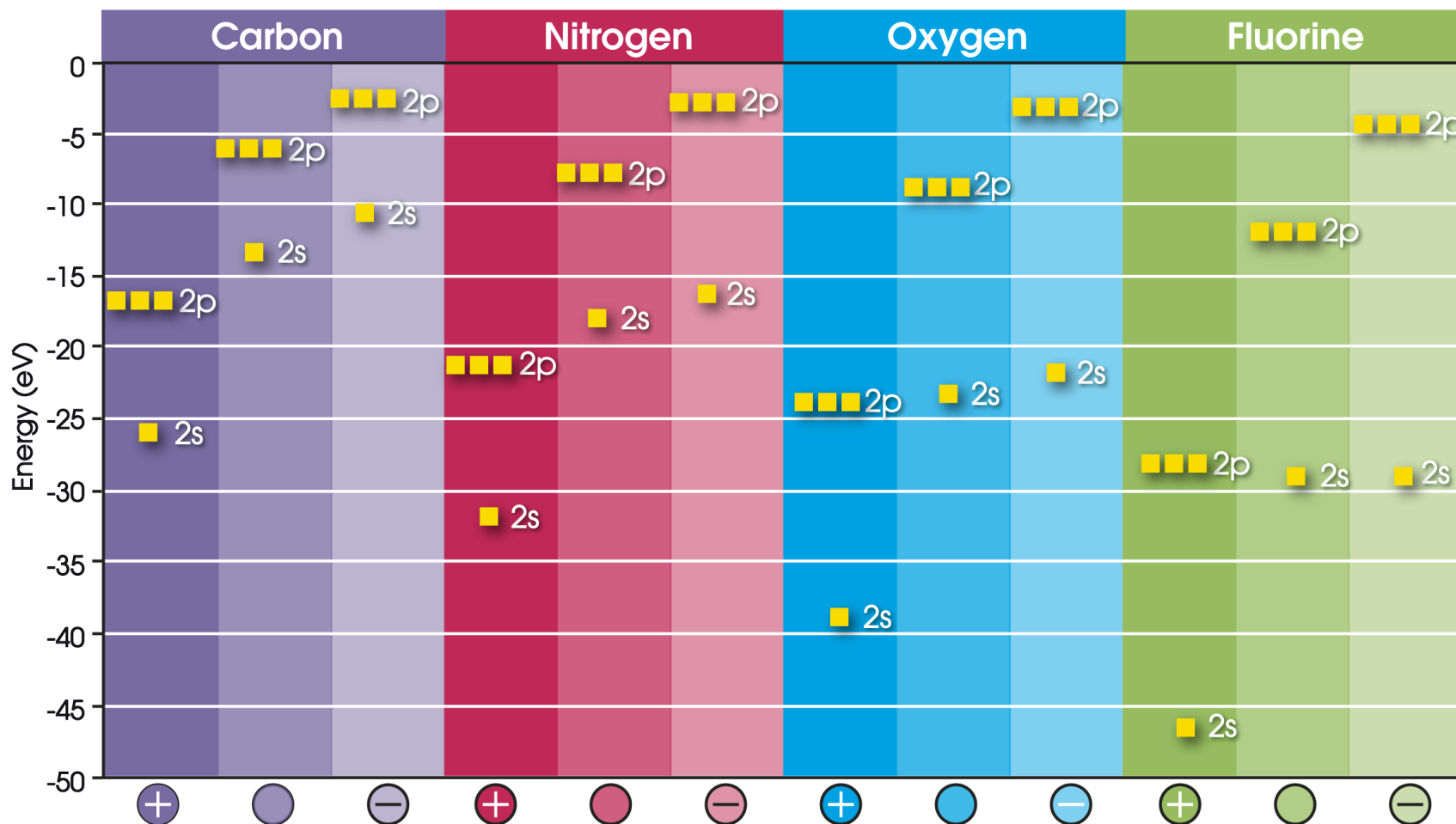
Atomic Orbital Energies (Schematic)

Why Eight?



Based on the previous graph, this schematic diagram shows how the energy of the highest filled atomic level varies with atomic number (see previous figure). The energy minima at He, Ne, and Ar are spaced apart by **eight** atomic numbers.

Period 2 Orbital Energies of Neutral Atoms & Ions



Orbital energy data for all atoms are available at URL <http://physics.nist.gov/PhysRefData/DFTdata/Tables/ptable.html>

- Energy levels depend on formal charge (+ lower than neutral lower than -)
- Energy levels drop in moving to right (explains the origin of electronegativity)