Modern Atomic Theory & the Periodic Table

By test time I should be able to…

1. understand that the modern atomic theory considers the wave properties of an electron in order to predict probable locations for electrons outside the nucleus of the atom.
2. write the electron configuration for any atom (element) by using its position on the periodic table as a guide.
3. draw orbital diagrams (boxes with arrows) for any atom (element) on the periodic table.
4. explain the difference between an orbit and an orbital.
5. understand that energy levels represent the distances electrons are allowed from the nucleus and predict the relative energy possessed by an electron based upon the energy level it occupies.
6. explain what valence electrons are and know how to determine the number of valence electrons in an atom.
7. define atomic radius, ionization energy, and electron affinity.
8. understand the trends on the periodic table for atomic radius (size), ionization energy and electron affinity.
9. know the names of the families (groups) on the periodic table.
10. know the numbers for the periods (rows) of the periodic table.
11. identify any element given its period and family on the periodic table.
12. identify diatomic elements, metals, nonmetals and metalloids.