

Chapter 8 Electron Configuration and Chemical Periodicity

This chapter builds on the mechanics mastered in Chapter 7 and relates the quantum orbital states of atoms to the properties of atoms and elements. This chapter also addresses how these states relate to the Periodic Table arrangement of the elements. The basic breakdown into regions of metals, nonmetals, semimetals, and noble gases is explained as well as why these elements behave the way they do. Electron configurations are an important concept to master in this chapter. The chapter demonstrates how using electron configurations including those of anions and cations can help AP students in determining quantum numbers, orbital diagrams, paramagnetism, and diamagnetism, as well as aide students understanding “why” of the periodic trends such as atom size, ion size, ionization energy (first and successive), oxide behavior, and electron affinity. Students are routinely asked to explain all these concepts on the AP Exam.