

Periodic Table Unit Objectives Honors Chemistry

By the end of this unit students should be able to:

- Identify the major contributions of Mendeleev and Moseley to the development of the Periodic Table
- Distinguish between representative elements and the transition elements on the periodic table
- Understand that according to the Periodic Law, when arranged according to atomic number, the properties of elements have a repeating pattern
- Know that the period number is equal to how many principal energy levels each of its constituent elements contains
- Know that elements in the same group contain the same number of valence electrons, hence similar physical and chemical properties
- Locate the period and group to which an element belongs based on a given electron configuration
- Classify elements as metal, nonmetal, or metalloid based on location on the Periodic Table as well as its properties
- Identify the states of matter of different elements
- State *and explain*, the trends for atomic radius, ionic radius, electron affinity, first ionization energy, and electronegativity for elements in a given period and group
 - Explain, in terms of electron configuration and stability, why some of the exceptions in these trends occur
- Explain what the shielding effect is and how it influences the properties of elements/explains periodic trends
- Explain why successive ionization energies are typically higher than first ionization energies
- Identify the names and general properties of elements in Groups 1, 2, 17, and 18