



Reavis High School

Chemistry I Honors Curriculum Snapshot



Introduction

5
Days

Students will learn the safety rules and equipment of the science laboratory and demonstrate their competence by observing proper safety protocol and equipment usage throughout the school year. The thought processes and design associated with developing controlled experiments will be discussed for preparation of scientific research, experimental design, and application that students will be expected to employ throughout the school year.



Unit 1: Atomic Theory and The Periodic Table

30
Days

The contributions of scientists to evolutionary development of the standard atomic theory will be traced from the time of Democritus to present day. As the evolutionary history unfolds, students will learn how to utilize the periodic table in order to explain the organization of the subatomic particles of an atom.



Unit 2: Compounds and Bonding

30
Days

Students will explore the behavior of atoms in forming ionic and molecular compounds. Throughout this exploration, writing chemical formulas, naming compounds, analyzing electron configurations, and making inferences about the behavior of atoms during bonding from the atom's position on the periodic table will be utilized. Covalent bonding of molecules, ionic bonding, and metallic bonding will be compared and contrasted in terms of their physical and chemical properties.



Unit 3: Physical Properties & Measurement

25
days

Physical properties of matter specifically substances (elements and compounds) will be discovered and analyzed in order to classify and identify substances. A focus will be on the behavior of substances under different temperature conditions and how that behavior influences environmental conditions. As an extensive physical property of matter, measurement will be studied resulting in the students' ability to be both accurate and precise within the laboratory.



Unit 4: Interactions (Chemical & Nuclear)

30
Days

Chemical reactions will be classified, written, and analyzed through the study of the following concepts: spontaneity, reaction rates, equilibrium position, enthalpy, and entropy. Students will study half-life, types of nuclear decay, fission, and fusion in order to develop the knowledge necessary to describe the differences between chemical and nuclear reactions. Nuclear reactions and their impact on scientific discovery (specifically the proton and neutron) and its role in American history will be highlighted.



Unit 5: Stoichiometry

30
Days

Through the study of stoichiometry, students will develop the knowledge to quantitatively analyze chemical reactions. As a result of this analysis, decisions can be made as to how to best use chemicals safely and without waste in the laboratory in order to get the desired product(s).



Unit 6: Mixtures

30
Days

As the study of matter continues, types of mixtures (homogeneous and heterogeneous) will be identified based on various physical properties. Particular attention will be paid to solutions (homogeneous mixtures). Solution concentration, effects of several factors on solubility of a solute within a particular solvent, and pH will be qualitatively and quantitatively studied in order to understand solutions.