

# Chemistry Core Standards

The chemistry course encourages students to continue their investigation of the structure of matter along with chemical reactions and the conservation of energy in these reactions. Inquiry is applied to the study of the transformation, composition, structure, and properties of substances. The course focuses on basic chemical concepts and incorporates activities that promote investigations to reinforce the concepts.

Days*	Chapter	Goal	Unit	Topics**
5	1, 2, 3	2.2	Day One; Intro & Conversions	Chm.2.2.2 Analyze the evidence of chemical change. <span style="float: right;"><b>Quest: September</b></span>
9	4, 5	1.1	2 Atomic Theory	Chm.1.1.1 Analyze the structure of atoms, isotopes, and ions. Chm.1.1.2 Analyze an atom in terms of the location of electrons. Chm.1.1.3 Explain the emission of electromagnetic radiation in spectral form in terms of the Bohr model. Chm.1.1.4 Explain the process of radioactive decay by the use of nuclear equations and half-life. <span style="float: right;"><b>Unit Test: September</b></span>
5	6, 7	1.3	3 Periodic Table	Chm.1.3.1 Classify the components of a periodic table (period, group, metal, metalloid, nonmetal, transition). Chm.1.3.2 Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table. Chm.1.3.3 Infer the atomic size, reactivity, electronegativity, and ionization energy of an element from its position on the Periodic Table. <span style="float: right;"><b>Quest: September</b></span>
10	8, 9	1.2	4 Nomenclature & Bonding	Chm.1.2.4 Interpret the name and formula of compounds using IUPAC convention. <span style="float: right;"><b>Nomenclature Quest: Oct.</b></span> Chm.1.2.1 Compare (qualitatively) the relative strengths of ionic, covalent, and metallic bonds. Chm.1.2.2 Infer the type of bond and chemical formula formed between atoms. Chm.1.2.5 Compare the properties of ionic, covalent, metallic, and network compounds. <span style="float: right;"><b>Unit Test: October</b></span>
9	10	2.2	5 Reactions	Chm.2.2.2 Analyze the evidence of chemical change. Chm.2.2.3 Analyze the Law of Conservation of Matter and how it applies to various types of chemical equations (syn., decomp., single repl., double repl., and combust). <span style="float: right;"><b>Unit Test: October</b></span>
6	11	2.2	6 Moles	Chm.2.2.5 Analyze quantitatively the composition of a substance (empirical formula, molecular formula, percent composition, and hydrates). <span style="float: right;"><b>Quest: October</b></span>
<b>2<sup>nd</sup> Quarter Material</b>				
8	12	2.2	7 Stoichiometry	Chm.2.2.4 Analyze the stoichiometric relationships inherent in a chemical reaction. <span style="float: right;"><b>Unit Test: November</b></span>
12	13, 14	1.2 2.1	8 Solids, Liquids, and Gases	Chm.2.1.1 Explain the energetic nature of phase changes. Chm.2.1.2 Explain heating and cooling curves (heat of fusion, heat of vaporization, heat, melting pt, and boiling pt). Chm.2.1.3 Interpret the data presented in phase diagrams. <span style="float: right;"><b>Gas Laws Quest: Nov.</b></span> Chm.2.1.5 Explain the relationships between P, T, V, and quantity of gas (moles) both qualitative and quantitative. Chm.1.2.3 Compare inter- and intra- particle forces. <span style="float: right;"><b>Unit Test: December</b></span>
8	15, 18	3.1 3.2	9 Solutions & Equilibrium	Chm.3.2.3 Infer the quantitative nature of a solution (molarity, dilution, and titration with a 1:1 molar ratio). Chm.3.2.4 Summarize the properties of solutions. Chm.3.2.5 Interpret solubility diagrams. Chm.3.2.6 Explain the solution process. Chm.3.1.1 Explain the factors that affect the rate of a reaction (temp., conc., particle size and catalyst). Chm.3.1.2 Explain the conditions of a system at equilibrium. Chm.3.1.3 Infer the shift in equilibrium when a chemical system is stressed. (Le Chatelier's Principle) <span style="float: right;"><b>Unit Test: December</b></span>
5	19	3.2	10 Acids & Bases	Chm.3.2.1 Classify substances using the hydronium and hydroxide ion concentrations. Chm.3.2.2 Summarize the properties of acids and bases. <span style="float: right;"><b>Unit Test: December</b></span>
3	16, 17	2.1 2.2	11 Thermochemistry	Chm.2.1.4 Infer simple calorimetric calculations based on the concepts of heat lost equals heat gained and specific heat. Chm.2.2.1 Explain the energy content of a chemical reaction.
2	ALL	ALL	Exam review	<b>January 11-13</b> <span style="float: right;"><b>Final Exams January 17-</b></span>

\* Includes day of test

\*\* Dates of tests may change to reflect changes in the PLT calendar