Honors Chemistry Syllabus

Course Description/Goals:

Honors Chemistry builds on students' prior science knowledge through hands-on exploration and critical thinking as they investigate the composition, properties, and changes of matter. Students engage in 3D science instruction, integrating science and engineering practices, crosscutting concepts, and disciplinary core ideas. Through the 5E instructional model, students ask questions, plan and conduct investigations, and design solutions to authentic chemical problems. The honors course emphasizes student-led learning and inquiry, promoting higher-order thinking skills and deeper exploration of topics such as atomic structure, periodic trends, chemical bonding, stoichiometry, thermochemistry, and reaction kinetics. Differentiated assessments and extended content provide students with the background knowledge and skills to excel in AP Chemistry and other advanced science courses.

Course TEKS/Objectives:

The Chemistry TEKS are organized into broad conceptual categories that guide students in developing a deep understanding of matter and its interactions. Students explore the structure of the atom, development of atomic theory, and periodic trends. They investigate chemical bonding and molecular geometry, chemical reactions, stoichiometry, and conservation of mass. The curriculum also emphasizes gas laws, solution chemistry, acids and bases, thermochemistry, and nuclear processes. Students develop scientific and engineering practices through inquiry, modeling, and problem solving as they apply core principles to explain the behavior of matter and energy in real-world contexts. Each category contains specific standards (TEKS) that students are expected to master and can be referenced here.

Course Outline:

Semester 1	Semester 2
-Matter, Energy, and Changes -Atomic Structure and History -Nuclear -Periodic Table and Trends -Chemical Bonding - Ionic, Covalent, and Metallic -Chemical Bonding - Names & Formulas -Physical Properties of Substances	-Chemical Quantities (The Mole) -Chemical Reactions & Redox -Stoichiometry -The Behavior of Gases -Thermochemistry and The Progress of Chemical Reactions -Acids & Bases