On Level Chemistry Syllabus

Course Description/Goals:

In Chemistry, students explore the properties, structure, and behavior of matter through hands-on investigations and real-world applications. Using the 5E model and 3D science instruction, students apply scientific and engineering practices to investigate topics such as atomic theory, the periodic table, chemical bonding, reactions, stoichiometry, gas laws, solutions, acids and bases, thermochemistry, and nuclear chemistry. Students engage in inquiry-based labs, data analysis, and modeling to explain chemical changes and energy flow. The course emphasizes problem solving, critical thinking, and evidence-based decision making as students explore how chemistry is central to understanding both natural phenomena and modern life.

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
- Chemistry in Action - Atomic Structure and History - Electron Configurations -Periodic Table and Trends -Chemical Bonding and Nomenclature - Chemical Reactions	-Chemical Quantities (The Mole) -Stoichiometry -The Behavior of Gases -Thermochemistry -Solutions -Acids & Bases -Nuclear