Chemistry offers a curriculum that emphasizes students' understanding of fundamental chemistry concepts while helping them acquire tools to be conversant in a society highly influenced by science and technology.

The course provides students with opportunities to learn and practice critical scientific skills within the context of relevant scientific questions. Topics include the nature of science, the importance of chemistry to society, atomic structure, bonding in matter, chemical reactions, redox reactions, electrochemistry, phases of matter, equilibrium and kinetics, acids and bases, thermodynamics, quantum mechanics, nuclear reactions, organic chemistry, and alternative energy.

Scientific inquiry skills are embedded in the direct instruction, wherein students learn to ask scientific questions, form and test hypotheses, and use logic and evidence to draw conclusions about concepts. Lab activities reinforce critical thinking, writing, and communication skills and help students develop a deeper understanding of the nature of science.

Throughout this course, students are given an opportunity to understand how chemistry concepts are applied in technology and engineering. Journal and Practice activities provide additional opportunities for students to apply learned concepts and practice their writing skills.

This course is built to state standards.

Length: Two Semesters

Unit 1: Matter, Forces, and Energy

- Matter
- Energy and Forces
- Conservation of Energy
- Doing Science: Matter, Forces, and Energy
- Matter, Forces, and Energy Wrap-up

Unit 2: Atoms and the Periodic Table

- Atoms
- Elements
- Atoms and the Periodic Table Wrap-Up

Unit 3: Bonding in Matter

- Electrons and Periodicity
- Bonding and Forces
- Compounds and Molecules
- Properties of Matter
- Bonding in Matter Wrap-Up

Unit 4: Chemical Reactions and Stoichiometry

- The Mole and Chemical Quantities
- Changes in Matter
- Stoichiometry
- Doing Science: Chemical Reactions and Stoichiometry
- Chemical Reactions and Stoichiometry Wrap-Up

Unit 5: Semester Wrap-Up

Unit 6: Phases, Equilibrium, and Kinetics

- Phases of Matter
- Equilibrium
- Kinetics
- Doing Science: Phases, Equilibrium, and Kinetics
- Phases, Equilibrium, and Kinetics Wrap-Up

Unit 7: Transferring Energy

- Transferring Heat
- Enthalpy
- Entropy and Spontaneity
- Doing Science: Transferring Energy
- Transferring Energy Wrap-Up

Unit 8: Quantum and Nuclear Chemistry

- Quantum Mechanics
- Energy in Electrons and Nuclei
- Nuclear Reactions
- Modeling Nuclear Reactions
- Quantum and Nuclear Chemistry Wrap-Up

Unit 9: Earth's Resources and Chemistry

- Natural Resources
- Resource Availability
- Doing Science: Earth's Resources and Chemistry
- Earth's Resources and Chemistry Wrap-Up

Unit 10: Semester Wrap-Up