

Chemistry Syllabus

Chemistry is the study of the structure, composition, and behavior of matter. Chemistry is a laboratory-oriented course that emphasizes the observation and classification of matter and its behavior, the communication of data and analysis, measurement of chemical quantities, and an understanding of chemical phenomena. The content covered in the course is as followed:



Unit 1

Foundations of Chemistry (approximately 31 instructional days)

Discover the atom. Students will learn about how energy is conserved in reactions, the structure of the atom, and the history and development of the periodic table. In addition, students will learn about the properties of subatomic particles and similarities between different elements.



Unit 2

Qualitative Chemistry (approximately 29 instructional days)

Identify compounds and elements. Students will learn about the properties of matter and how they interact with each other. Students will learn how atoms form metallic bonds, ionic bonds, and chemical bonds. Then, students will learn about the unique properties of water. Then, students will learn how to write and balance chemical equations and observe and classify different types of chemical reactions.



Unit 3

Quantitative Chemistry (approximately 33 instructional days)

Quantify compounds and elements. Students will learn about the fundamental concept of the mole. Students will calculate gas relationships between moles, volume, pressure, and temperature. They will also determine conversion factors to quantify the amount of matter in different units.



Unit 4

Applications of Chemistry (approximately 25 instructional days)

Explore chemical reactions. Students will apply skills to investigate and calculate the energy changes that occur in chemical reactions. The students will be able to calculate pH and predict the products of acid-base and oxidation-reduction reactions. Then, students will learn how to write balanced nuclear equations and compare and contrast fission and fusion.