

Chemistry Objectives (students will be able to):

- Use critical thinking skills to observe and explore chemical processes in the world around them, especially using the scientific method.
- Practice safety rules in using laboratory equipment and supplies.
- Correctly use an experimental apparatus to test a chemical hypothesis.
- Compare the properties of elements of the periodic table and design a presentation highlighting one element to be shared with the class.
- Observe, describe, and compare chemical reactions and factors affecting the rate of chemical changes.
- Classify and analyze reactions through ordering and sequencing data.
- Design and conduct a Science Fair experiment (required for 11th grade, optional for 10th & 12th).
- Apply defined terms and operational definitions to describe chemical processes through oral and written communications.
- Relate concepts of measured chemical quantities, effects of catalysts, and effects of temperature by plotting graphs.
- Identify and manipulate variables in a chemistry investigation.
- Demonstrate understanding of the concepts of the mole and Avogadro's number by correctly using them in calculations.
- Correctly figure the quantity of chemicals needed for a reaction by applying the principles of stoichiometry.
- Apply scientific laws and formulas for the manipulation of gases, liquids, acids and bases, oxidation/reduction reactions, and if time allows, nuclear reactions and electrochemistry.
- Compare and contrast chemical reactions through logical inferences, as well as predicting outcomes and formulating chemical hypotheses.
- Identify organic compounds and classes of organic compounds, as well as biochemical processes and reactions.
- Apply chemical processes to their daily lives.
- Evaluate career opportunities using chemistry, including preparing a presentation of one such career choice and sharing with the class.
- Evaluate the findings of current research in the field of chemistry.