



HIGH SCHOOL CHEMISTRY LABS

Fridays, September 17-December 17 (no class Oct 15, Nov 26; 12 weeks)

9:30am-11:00am

Ages 14+

Basic chemistry principles are reinforced in the fall semester labs by building models, interpreting the periodic table of elements, and conducting lab experiments commonly required in many high school chemistry and physical science curricula. Students learn laboratory techniques and perform hands-on experiments, including collecting scientific data, conducting chemical reactions, and studying reaction rates. In the spring semester, we will continue the topic with labs exploring molarity, gas laws, polymers and redox reactions more. A brief review of relevant material starts each lab, followed by a lab period which includes lab preparation, experimentation and clean-up. Lab supplies are included in registration fee.

Instructor: Coral Vega, MEd

Location: STEM Lab (suite 21)

Course fee: \$275 OR \$25/lab

Early registration (10% off) through August 30

10% sibling discount beginning August 31

Register for full semester or individual labs.

LAB SCHEDULE:

THE METRIC SYSTEM - Friday, September 17

We review the metric system and conversions of units as we practice the proper use of scientific measurement tools.

DATA ANALYSIS - Friday, September 24

Scientists must analyze their data to make conclusions about their results. This week, students learn to create proper tables and graphs to present scientific data.

ATOMIC STRUCTURE - Friday, October 1

Students study the atomic structure of elements, how electrons are arranged around the nucleus of atoms, and why valence electrons are important.

THE PERIODIC TABLE - Friday, October 8

This week, we learn to read the periodic table, how it is arranged and characteristics of groups of elements.



IONIC AND COVALENT BONDS - Friday, October 22

Students learn how some elements form bonds to create compounds, and we play Valence to practice creating proper molecules.

MOLECULAR ARRANGEMENTS - Friday, October 29

Students investigate molecular arrangements and conservation of matter, and learn how these molecular arrangements affect density.

PROPERTIES OF WATER - Friday, November 5

We study the special properties of water that allow molecules to stick together, conduct experiments to observe these properties, and learn about capillary action.

DENSITY - Friday, November 12

This week we use the scientific method to explore the densities of various liquids and solids, and learn to calculate density to test our hypotheses.

CHEMICAL REACTIONS - Friday, November 19

We conduct endothermic and exothermic reactions in lab to investigate how energy is used or transformed during some chemical reactions.

REACTION RATES - Friday, December 3

This week, students conduct two chemistry experiments to demonstrate how different variables affect the rate a reaction occurs.

CHEMICAL EQUATIONS - Friday, December 10

We create models of chemical equations to learn how matter is conserved during chemical reactions, and practice balancing simple chemical equations.

pH LAB - Friday, December 17

Students learn different methods for testing the acidity or alkalinity of aqueous solutions and conduct acid-base reactions to neutralize reactants.