HIGH SCHOOL CHEMISTRY LABS

Fridays, January 28-April 29 (no class Feb 18, Mar 11, April 8; 11 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: Tonya Shearer, PhD
Location: STEM Lab (suite 21)
Course fee: $250 OR $25/lab
10% sibling discount
Register for full semester or individual labs.

LAB SCHEDULE:

ACID BASE LAB - Friday, January 28
Students learn different methods for testing the acidity or alkalinity of aqueous solutions and conduct acid-base reactions to neutralize reactants.

MORE CHEMICAL REACTIONS - Friday, February 4
We explore reduction oxidation reactions and clock reactions as we conduct a variety of experiments to visualize molecular rearrangements.

MOLARITY - Friday, February 11
In today's lab, we review our understanding of metric conversions, learn about concentrations, and determine molar calculations necessary to make specific solutions.

SOLUBILITY - Friday, February 25
Like dissolves in like. We design and conduct experiments to determine the solubility of solids in liquids to test this hypothesis.

GAS LAWS - Friday, March 4
We investigate the relationships between temperature, pressure and volume through experiments to test different gas laws.

NON-NEWTONIAN FLUIDS - Friday, March 18
We explore viscosity and unusual substances that have characteristics of both a solid and a liquid as we learn about shear stress.

CRYSTALLIZATION - Friday, March 25
Students study the process of crystallization, observe how molecules arrange themselves as they precipitate out of a liquid, and experiment with the effects of temperature on the formation of crystals.

SUBLIMATION AND DECOMPOSITION - Friday, April 1
We study the processes of sublimation and deposition through iodine experiments, as well as conduct experiments to decompose compounds.

CHROMATOGRAPHY - Friday, April 15
Students learn about mixtures and practice thin-layer chromatography, a technique used to separate chemical mixtures.

ELECTROCHEMISTRY - Friday, April 22
We use electricity and chemistry to coat one metal onto the surface of another metal as we learn the science of copper-plating coins.

CHEMISTRY OF FIRE - April 29
In lab today, students study combustion and the chemical reaction that occurs when we light a match, investigate why things burn.