



## ELEMENTARY SCIENCE LABS

Wednesdays, September 11-December 11 (no class October 16 or November 27; 12 weeks)

11:00am-12:15pm

Ages 8-10

This semester, students experiment with chemistry, physics and biology as they investigate the world around them from a scientific perspective. We explore states of matter and non-Newtonian fluids, use scientific tools to measure and conduct experiments, investigate the characteristics of water, light and sound, study force and motion, collect data and more. All lab costs are included in registration fee. Course enrollment is limited to 12 students.

Instructor: Karen Berry, MSc

Location: Science Center (suite 5)

Course fee: \$220 OR \$20/lab

10% off early registration discount through July 31

10% off sibling discount available beginning August 1

### LAB SCHEDULE:

**Unusual States of Matter** – Wednesday, September 11

Students study the characteristics of substances that seem to defy our definitions of gasses, liquids and solids, observe unexpected state changes (solid to a gas, and melting metal with warm water), and experiment with aerogel.

**Superbug Metrics** – Wednesday, September 18

Superbugs have invaded the lab! We use the metric system to characterize the mass, volume and dimensions of each species to determine how to control them.

**The Mass of Gas** – Wednesday, September 25

How much does air weigh? In this lab, we explore the difference between weight and mass, experiment with and measure the mass of different gasses, and learn why helium balloons float.

**Water Science** – Wednesday, October 2

This week we learn about the interesting properties of water, and the reason we call it H<sub>2</sub>O. We study capillary action and surface tension, and create an art project using the attractive forces of water molecules.

### **Chemistry Potions – Wednesday, October 9**

In this lab, we study molecular rearrangements and chemical reactions. Students learn the science of color-changing potions, salt water recrystallization, and for more fun, they set off soda geysers.

### **Science of Light – Wednesday, October 23**

We investigate the electromagnetic spectrum and light sources in lab this week. Students study reflection, refraction, and emission of light waves, and conduct experiments with chemiluminescence and solar beads.

### **Science of Sound – Wednesday, October 30**

Students learn the biology and physics of how we hear sound waves by visualizing sound waves, testing materials to demonstrate how well sound waves are conducted, and creating an instrument to produce vibrations that make sound.

### **Magnetic Forces and Ferrofluid – Wednesday, November 6**

This week we investigate magnetism and the Earth's magnetic force. Students make a compass to demonstrate the magnetic field surrounding us, and visualize magnetic fields using ferrofluid.

### **Rube Goldberg Challenge – Wednesday, November 13**

In this lab, we are challenged to use our engineering skills and creativity to design and build a complex machine out of random materials to perform a simple task.

### **Diffusion and Osmosis – Wednesday, November 20**

We learn about the movement of molecules through space and matter as we conduct diffusion and osmosis experiments with eggs, potatoes and food color.

### **Microscopy – Wednesday, December 4**

Students learn the proper use of microscopes as we investigate plant and animal cells, create biological drawings and learn to make wet-mount slides.

### **Graphing Experiments – Wednesday, December 11**

This week we conduct simple experiments with M&Ms, collect data, and graph our results just as scientists do in a real working lab.