

## Recommended Forensics Science Labs

The following labs are suggested for science and available from:

Walker, Pam, and Wood, Elaine. *Crime Scene Investigations: Real Life Science Labs for Grades 6 -12*. West Nyack, NY: The Center for Applied Research in Education, 1998.

*Neo-Sci – Introduction to Chromatography (science kit)*, PO Box 22729 Rochester, NY 14692-2729, 800-526-6689.

### **Ink and Lipstick Chromatography**

Chromatography is an ancient method of separating parts of a mixture. In this chemistry lab, students learn to separate the mixtures of dyes used in ink and lipstick. They determine whose pen the ink matches or whose lipstick was found on a napkin.

### **Unknown Substances Chemical Analysis**

Crime labs often receive unknown substances taken from a crime scene. In this lab, students learn how to identify an unknown substance by performing a series of tests to determine the physical and chemical characteristics of several unknown powders.

### **Soil Analysis**

Soil taken from the shoes of suspects can provide excellent evidence for a crime. In this lab, students analyze the characteristics of various soil samples. They perform an experiment to test the soil's ability to hold water in order to determine the amounts of sand, clay, and humus, and determine the pH of the samples.

### **Hair Classification**

Hair recovered from a crime scene can be valuable evidence. Forensic scientists use color, shape, and distribution of pigment granules to tell the difference between individual' hairs. In this lab, students classify several hair samples from animals and humans.

### **Lip Print Test**

Like fingerprints, lip prints are unique and can therefore be used to identify individuals. In this lab, students learn how to analyze lipstick prints and compare print patterns to determine who committed a crime.

### **DNA Inquiry**

Every person has unique DNA that can be seen in a single cell found in a fingerprint. DNA fingerprinting has an accuracy rate of 99 percent for determining whether a fingerprint sample came from a particular individual. In this lab, students create and analyze the patterns of fictitious DNA fingerprints to determine paternity.

### **Handwriting Analysis**

Handwriting analysis is often used in forensic science to identify who wrote a particular document. Handwriting experts usually analyze requested writing and collected writing done before the investigation begins. In this lab, students learn to recognize patterns in handwriting by analyzing handwriting on a questioned document to determine the author of the document.

### **Shoepprints Observation**

Shoepprints or footprints can be important evidence. Therefore, it is necessary to carefully preserve the impressions for observation in a laboratory. In this lab, students make a cast of a shoe impression. They then analyze the tread pattern and measure the size to determine whether the suspect's shoe matches prints taken from a crime scene.

**Tool Marks Experimentation**

Tool marks are often found at burglary scenes where there was forced entry. The object used to pry a window or door open can leave a mark in the wood or other material. Investigators usually make a cast of the mark and analyze it in the lab by comparing the mark with several test tool marks. In this lab, the teacher shows students how clay can be used to make a cast of a tool mark. Using five different screwdrivers, the teacher demonstrates how each makes a different mark. Students use microscopes to examine the patterns of the tool marks and determine which tool was used to commit a crime.

**Glass Bulbs Density Test**

In many cases, there is broken glass. In this lab, students learn how to differentiate whether two glass samples originated from the same piece by determining the densities of several glass samples.

**Fiber Match**

Fibers taken from a crime scene can help an investigator determine who has been on the scene and where the victims of the crime have been. In this lab, students record their observations of fabric's odor, residue, and reaction to flame as it approaches and is removed from the flame. They then try to identify the type of fabric.