

Lesson Plan
For High School Forensic Science Classes*

Collecting the Evidence

Objectives

Students Will:

- Learn the different tools used to collect evidence at a crime scene
- Learn how to properly collect, maintain, and transport evidence
- Learn proper vocabulary
- Participate in a mock crime scene

Materials

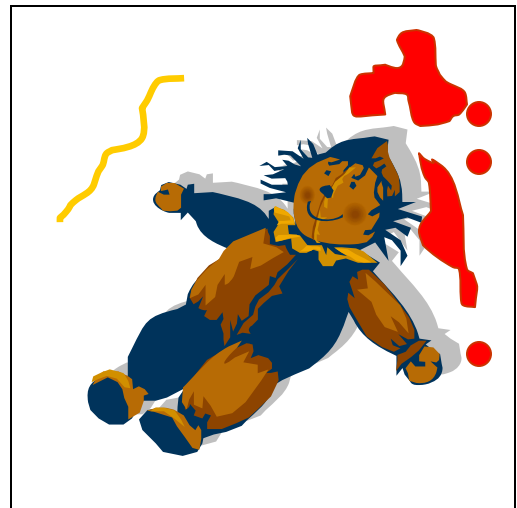
- Forensic Handouts
- Toy Doll
- Cotton Swabs
- Paper Bags
- Paper Envelopes
- Latex Gloves
- Tweezers
- Red Food Coloring

Procedures

1. Have students read handouts
2. Answer any questions
3. Divide the class into teams of 3-5
4. Conduct crime scene investigation
5. Have students write down a report of what the team did at the crime scene
6. Review and grade

Setting Up Crime Scene

1. Place toy doll in center
2. Place drops of red water around doll to simulate blood
3. Place hair from a different doll near original (see if students can identify the different hair fragment)
4. Make sure each team has the needed tools



*Karagiozis, M, & Sgaglio, R (2005). *Forensic Investigation Handbook*.Springfield, Illinois: Charles C Thomas.

Lecture Notes/Handouts

RECOGNITION

The first step in collecting evidence is learning how to recognize evidence. There will not always be a smoking gun left behind at a crime scene covered with the fingerprints of the guilty party. Crime scene investigators have to consider all kinds of evidence. From obvious evidence such as fingerprints and blood, to evidence that may seem to be, at first glance, garbage, such as a toothpick or cigarettes. Even these small, seemingly useless items may carry DNA evidence through saliva.

COLLECTION

Collecting evidence is a very delicate, fragile process that requires great care. Precautions must be taken in order to protect not only the evidence being gathered, but also the person gathering the evidence. Biological evidence can contain contaminants that could be harmful to an investigator. Latex gloves, and in some cases, masks, ought to be worn to keep investigators safe from harm. These precautions not only protect the investigator from harm, but protect the evidence from becoming contaminated by the investigator themselves.

All non-liquid evidence (hair, weapons, powder, etc.) needs to be collected in paper bags or envelopes. Even in cases where liquid blood is present, it needs to be collected in a way that it can be transported in paper. If a pool of liquid blood is found on a crime scene, a cotton swab or a cloth towel needs to be used to dry the blood so that it can be transported in paper. Blood is best transported in paper is because static electricity can cause the blood to stick to the side of plastic containers. Blood should be transported dry in order to prevent bacteria to grow or enzymatic degradation to occur, both of which can happen to liquid blood contained in plastic. Of course, deterioration can occur over time no matter what preservation techniques are to be used. To help prevent complications in analysis of blood, test should be run as soon as possible. If tests cannot be conducted immediately, blood ought to be refrigerated or even frozen, to slow decomposition.

CHAIN OF CUSTODY

The chain of custody refers to the journey that evidence takes as it is being passed from place to place. It keeps track of who had the evidence, where it has been, and when it was passed along. The chain of custody is a very important part of the legal process.

Crime Scene Vocabulary

Algor Mortis - the cooling of the body that follows death.

Anthropometrical - the measurement of the size and proportions of the human body.

Autopsy - inspection and dissection of a body after death, as for determination of the cause of death; postmortem examination.

Cephalometer – an instrument for measuring the human head.

Chain of Custody - the order in which a piece of criminal evidence should be handled by persons investigating a case, specif. the unbroken trail of accountability that ensures the physical security of samples, data, and records in a criminal investigation.

Circumstantial Evidence - proof of facts offered as evidence from which other facts are to be inferred.

Coroner - an officer, as of a county or municipality, whose chief function is to investigate by inquest, as before a jury, any death not clearly resulting from natural causes.

Criminalistics - the scientific study and evaluation of physical evidence in the commission of crimes.

Dactyloscopy - a method of studying fingerprints to establish identification.

Dermatoglyphics - the patterns of ridges on the inner surface of the hands and feet.

Distillation - the volatilization or evaporation and subsequent condensation of a liquid.

Epiphyses - a part or process of a bone separated from the main body of the bone by a layer of cartilage and subsequently uniting with the bone through further ossification.

Erythrocyte - a red blood cell.

Evidence - that which tends to prove or disprove something; ground for belief; proof.

Fingerprint - an impression of the markings of the inner surface of the last joint of the thumb or other finger.

Footprint - a mark left by the shod or unshod foot, as in earth or sand.

Forensic - pertaining to, connected with, or used in courts of law or public discussion and debate.

Hemosiderin - a yellowish-brown protein containing iron, derived chiefly from hemoglobin and found in body tissue and phagocytes, esp. as the result of disorders in iron metabolism and the breakdown of red blood cells.

Hypothesis - a proposition, or set of propositions, set forth as an explanation for the occurrence of some specified group of phenomena, either asserted merely as a provisional conjecture to guide investigation.

Latents - Present or potential but not evident or active.

Lesion - an injury; hurt; wound.

Leukocyte - a white blood cell

Livor Mortis - hypostasis of the blood following death that causes a purplish red discoloration of the skin.

Melanin - any of a class of insoluble pigments, found in all forms of animal life, that account for the dark color of skin, hair, fur, scales, feathers, etc.

Morphology - the branch of biology dealing with the form and structure of organisms.

Petechia - a minute, round, nonraised hemorrhage in the skin or in a mucous or serous membrane.

Postmortem - of, pertaining to, or occurring in the time following death.

Rigor Mortis - the stiffening of the body after death.

Serum - the clear, pale-yellow liquid that separates from the clot in the coagulation of blood; blood serum.

Somatometry - a branch of anthropometry that is concerned with measurement of parts of the body other than the head.

EVIDENCE

Date: _____ Case # _____

Crime: _____

Date of Crime: _____ Time of Crime: _____

Crime Scene Investigators: _____

Evidence

Description: _____

Location: _____

CHAIN OF CUSTODY

Received From:

By:

Date/Time:
