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forensic-classroomSM

Forensic Training for the Science Educator
Supplemental Training Materials

CRIME SCENE - DO NOT ENTER

CRIME SCENE - DO NOT ENTER

CRIME SCENE - DO NOT ENTER

General Crime Scene Contents

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Forensic-Classroom – Supplemental Material **General Crime Scene**

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Role of the Forensic Specialist

Whether they are called Evidence Technicians, Crime Scene Technicians or have some other title, any person engaged in examining scenes of crimes or other incidents plays a very specific role in the criminal justice system. These individuals are expected to:

- Apply a scientific method of analysis to the examination of crime scenes for evidence.
- Be knowledgeable in a variety of areas related to evidence collection and processing.
- Collect, preserve and identify evidence for its ultimate presentation in court.
- Provide professional testimony about the evidence and its collection from the scene.
- Provide guidance to other police personnel about the value of physical evidence and the information it can provide in a criminal investigation.

Role of Physical Evidence

Physical or real evidence plays a vital role in the investigative process. Virtually any tangible item can be used to:

- Prove that a crime was committed
- Establish the elements of a crime
- Identify a suspect or victim
- Link a suspect or victim to a crime scene
- Link a suspect or victim to one another
- Support or disprove statements made by suspects, victims or witnesses
- Provide a powerful interrogation tool

Value of Physical Evidence

There is no Fifth Amendment protection against incrimination by physical evidence¹. Unlike verbal statements or oral admissions, individuals involved in a criminal investigation can be forced (through court order) to provide samples of hair, blood, fingerprints, speech, handwriting or evidence of other personal traits.

¹ Schmerber v. California, 384 U.S. 757 (1966)

Crime Scene Defined

A crime scene is any location where evidence related to the crime may be recovered. This includes the immediate scene as well as logical access and escape routes.

- The immediate area of the crime or incident
- The area about the scene
- The victim and suspect
- Persons, locations and/or objects some distance from the scene

Scene Processing: Logical Progression

- Identification
- Protection
- Assessment
- Processing
- Review
- Release
- Follow Up

Scene Protection: Crime Scene Management

Purpose

In its simplest sense, the phrase “crime scene management” refers to employing proper procedures in protecting a crime scene to keep it the way it was when the offender left. In reality, the moment that a witness, police officer or emergency medical personnel enter a scene, it has been altered from its original state.

“Crime scene management” then becomes a process that seeks to minimize the damage done at a scene followed by the proper application of investigative and forensic examination techniques.

First Officer on Scene

The actions of the first officer responding to a scene will often be the most critical in assuring the successful outcome of the investigation. While the first responding officer will always have the primary obligation of rendering aid and assuring the safety of others at the scene, there are certain steps that he or she can take to begin the crime scene management process.

- Control persons already on the scene; Remove or restrict the movement of family members; direct the movement of emergency medical personnel through the scene.

- Assess the legal requirements for the crime scene search. Will a search warrant be needed? (If consent has been given who gave it? Who told you about it?)
- Establish a staging or work area (safe area).
- Conduct a preliminary scene walkthrough. Take a “hard” look at the scene. Develop a scene search and processing plan.
- Assess the need for additional personnel and/or equipment.
- Conduct scene processing; maintain a line of communication with the investigators.
- Final release of scene.
- Follow-up with evidence inventory and lab submissions.

Scene Assessment: Interview the First Responding Officer

This is a basic step in the crime scene process that cannot be overlooked. The information provided by this officer or officers will guide the crime scene technician in their scene processing efforts.

Answer the following questions:

- What is believed to be the nature of the incident?
- How was the incident discovered?
- How many police officers or other personnel were at the scene?
- What were the actions of officers at the scene? (Was the building searched? Were doors opened? Were lights turned on? Was evidence moved?)
- What scene contamination is known to have occurred from other emergency responders or the person(s) discovering the incident?
- Who are the persons that were at the scene?
- Where are the persons from the scene? (Has anyone been taken to the hospital? Is an officer assigned to the person at the hospital?)
- Is there any other significant information that this officer can provide?
 - Doors – open, closed, locked?
 - Signs of forced entry?
 - Lights on or off?
 - Odors – gunpowder, cigarette, perfume?
 - Shades and drapes open or closed?
 - Mail and newspapers uncollected?
 - Vehicles in area – leaving area?
 - Items disturbed.
 - Room temperature – hot, normal, cold?
 - Statements made by victim / witnesses.



Evaluating the crime scene, interviewing and gathering information from first responders.

Science Concepts: Observing, Inferring, Communicating, Posing Questions.

Scene Processing: Evidence Collection at the Scene

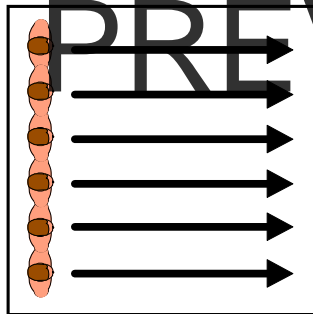
1. Preliminary scene walkthrough. Take a “hard” look at the scene. Develop a hypothesis of what has happened and determine a plan of action.

Answer the following questions:

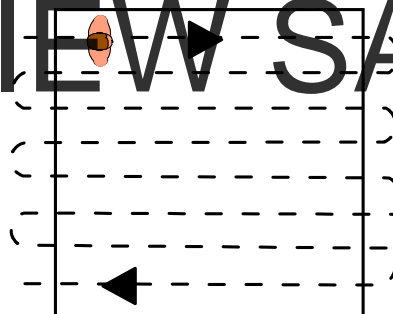
- What is the nature of the crime?
- How many persons are involved?
- What were the actions of the offenders or victim at the scene?
- How did they access the scene?
- How did they leave the scene?
- Is this a primary or secondary scene?
- What were the actions of the offenders or victim at the scene?
- Where has contact and transfer occurred?
- What types of evidence are present?
- Do you have all the resources you need to successfully process this scene? (“Resources” includes – time, manpower and equipment.)
- Is the scene safe to work in or are there hazards that exist? (Common to fire scenes.)

2. Utilize a systematic search pattern to ensure that the entire scene is covered.

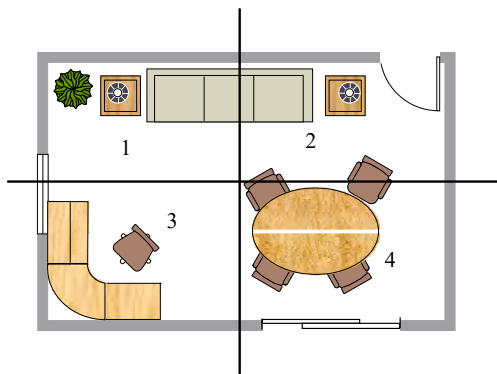
Examples of some search patterns.



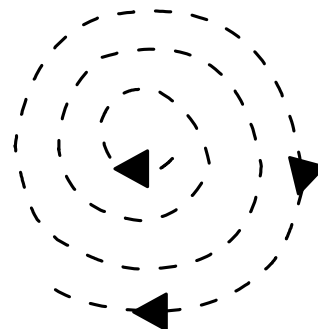
Line



Strip



Zone



Expanding Spiral

3. Identify the most fragile evidence. Fragile evidence or evidence that is in risk of being easily lost or destroyed should always be given preferential treatment during documentation and collection efforts. Hazards to evidence can be either human or environmental.
4. Employ appropriate scene documentation and collection processes. Depending on the nature of the crime, scene documentation may include:

Field Notes: Should document in detail the condition of the scene and evidence. Example: Is the blood wet or dry? Is it in the process of drying?

Field Sketch: Will best show the spatial relationships between items of evidence. These are also referred to as rough sketches and should include enough information to allow for a finished sketch to be made if desired.

Photography: Is critical in helping to present the information to a judge, jury or other investigators. Film cameras using a 35mm format will give excellent quality images. Digital cameras will in most instances provide acceptable quality. The use of instant photography should be avoided with few exceptions.

Video: This is a very specialized technique that will generally not be employed except in the case of more unusual or serious crimes.

All items of evidence must be documented in some fashion before they are moved, manipulated or collected. The only allowable exception is when conditions at the scene will cause the evidence item to be lost or destroyed unless recovered immediately.



Documenting the crime scene and evidence through notes, sketches, diagrams and photography / video.

Science Concepts: Developing hypotheses, measuring, applying concepts, making judgments.

Evidence Packaging & Handling

Evidence Must be Preserved for Scientific Analysis

The proper collection, handling and packaging of physical evidence are essential to the success of a criminal investigation. Physical evidence often proves that a crime occurred. This evidence can reconstruct the events, identify suspects, victims or witnesses and corroborate witness accounts. This evidence must be handled properly to protect against contamination, loss of evidence, and preserve chain of custody.

The following information does not include all types of evidence encountered at a crime scene. It is meant as a general guideline to assist the crime scene investigator.

The student should note that accredited forensic science laboratories will require that evidence packaging be

- Sealed with tamper resistant tape.
- Initialed and dated across the seal.
- Be appropriately labeled if a biohazard is present.

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The image shows two yellow evidence bags. The left bag has a red biohazard label with the word 'BLOOD' written on it. It also has a red seal with 'EVIDENCE' written on it. The right bag has a red seal with 'EVIDENCE' written on it. Both bags have handwritten information in black ink.

Left Bag:

- PROPERTY # MAN-4
- COMPLAINT 01-43765
- EVIDENCE**
- EVIDENCE Description 1 LEATHER GLOVE
- (RIGHT) w/ REDDISH BROWN STAINS
- Place Evidence found 4567 W/ 45TH STREET
- CHICAGO, IL.
- Date & time of recovery 01 JAN 01 1455 HRS.
- Suspect SIMPSON, O. Offense MURDER
- Victim BROWN, N.
- Evidence recovered by [Signature] # 4747
- Signature, rank
- CHAIN OF POSSESSION OF EVIDENCE
- Signatures required
- From to date time
- GPD 212

Right Bag:

- Red seal with 'EVIDENCE' written on it.
- Handwritten '21 JAN 01' and 'MAN' on the seal.

Scene Diagramming - Contents

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Forensic Classroom – Supplemental Material **Sketching & Diagramming**

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What Is a Diagram?

Simply put, a diagram is a graphical representation of a crime or other incident scene that will help others understand the scene.

- Diagrams support photographic documentation
- Diagrams are illustrations of the scene that provide an accurate description of that scene.

In court, a diagram serves as demonstrative evidence. So long as it is a fair representation of the scene, there is no legal requirement that it be drawn to scale.

Scene Diagramming – Purpose & Needs

Diagrams and sketches play a vital role in completing the proper documentation of crime and accident scenes. While diagrams are most commonly thought of as a form of supplemental information to the primary report, in reality they are an necessary complement to photographs.

Properly drawn diagrams are the only method available to correctly document the spatial relationships that exist in a crime or accident scene. These relationships occur between items of evidence and fixed or moveable objects within the scene. For both reporting and courtroom purposes, diagrams communicate information to others in a manner that would be near to impossible to do with words.

Unlike photographs or video tape, a diagram can be drawn to selectively include only the necessary and relevant items within a scene. Confusing detail can be eliminated. In this manner, the scene is presented in its most basic form.

As with other aspects of the reporting process, scene diagrams will serve to:

- Refresh the memory of investigators
- Support or refute statements by witnesses and suspects
- Explain the evidence to the reader of the report
- Prepare witnesses and present evidence at trial
- Assist in event reconstruction
- Provide the basis for 3-D models

There are many types of diagrams that may be utilized by the crime scene investigator during the scene processing effort. Some may be simple thumbnail sketches like those found on the back of a fingerprint card. Other diagrams may be computer generated or professionally prepared. However they are done, the crime scene investigator should make extensive use of diagrams. Great artistic talent on the part of the investigator is not required. The most crucial aspect in preparing a diagram is that the information be properly collected and accurately represented.

Specific benefits of diagrams include:

- Simplification of the scene – Confusing details left out
- Better overall depiction of the scene than photos
- Easy to show routes of travel by suspects, victims and vehicles
- Provide a permanent record of spatial relationships
- Can record some conditions better than any other means

The methods presented here are those most commonly used by crime scene investigators. They are not necessarily the only methods that can be employed. Any technique that allows for the proper collection and representation of this type of information can be used.

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Completing a scene diagram.

Science Concepts: Measuring, communicating, interpreting, and creating data tables.

Sketching & Diagrams

Typically, there are three different levels of diagrams that might be completed for any investigation. They are

- Reference Sketches
- Scene Documentation Sketches
- Scene Reconstruction Diagrams

In most instances, there is no need to complete a “to scale” diagram of a scene. A field sketch drawn neatly will provide a satisfactory reference for the reader of the report. Enough information should be obtained and included in the sketch so a finished diagram can be completed if needed. As much as possible, the sketch should be drawn in a proportional manner. Quadrille, cross section or graph paper can be used to assist in making a neat drawing. A pencil should be used initially so that changes can be made easily. Pencil lines can be gone over later in ink if required.

“Clean” diagrams that do not contain the measurement of every wall, window, door and object in the scene – but only show the layout of the scene and positioning of evidence items, are best to include with a report. Field notes and sketches containing detailed measurements should be inventoried as evidence until if and when they are needed.

In the following pages, several different methods are presented that can be used for locating items at a scene. Of the methods described, those that make use of measurements taken at right angles (Baseline and Coordinate) allow for the easiest recording of items into a diagram. This is particularly true for diagrams that are hand drawn or prepared with simple computer programs.

The methods presented are

- Baseline
- Rectangular Coordinate
- Triangulation
- Polar Coordinate

Measurement Devices

Typically measurement devices can be placed into four categories

- Mechanical
- Sonic
- Laser
- Global Positioning

As this handbook is meant to be a guide to basic scene diagramming, the focus will be on mechanical methods. This group can be divided into two types – distance measures and angle measures.

Distance Measures

- Fiberglass and Steel Reel Tapes (50' – 300')
- Retractable Tape Measures (10' – 25')
- Measuring Sticks
- Measuring Wheels

Angle Measures

- Transit
- Transit & Compass
- Azimuth Wheel
- Clinometer

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For scene documentation purposes the most accurate mechanical measuring tool is the tape measure. Measuring wheels should be avoided unless distances in excess of 300 feet need to be measured. Fiberglass measuring tapes, in addition to not conducting electricity, are easier to clean, have greater durability and are stronger.

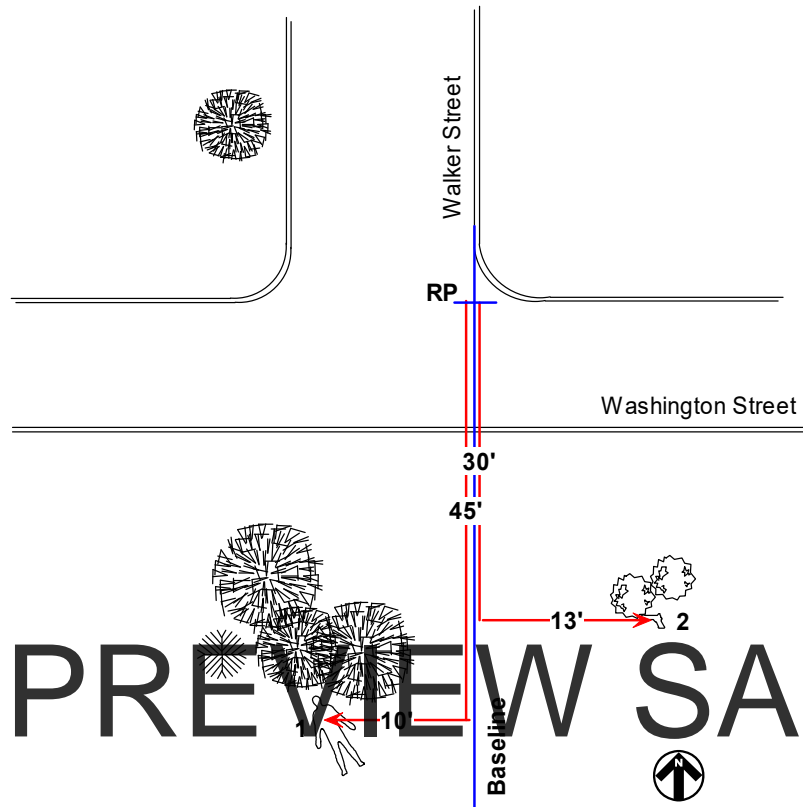
Measurement Units

There are three measurement units used in crime scene documentation - Architectural, Engineering and Metric.

Architectural

Most people will be very familiar with this type of measurement. It is the typical feet/inch unit of measure that is associated with most rulers and tape measures. Each foot is divided into 12 parts (inches) that are then divided into smaller units. Measurements can be expressed in total inches (54") or in a feet/inch manner (4' 6"). This is the most common method of measuring at scenes involving buildings. These units are expressed as $\frac{1}{4}" = 1$ foot in diagrams.

Because this method uses measurements taken from the reference or origin point as measured along two axes at right angles, it is very much like a Cartesian coordinate or rectangular coordinate reference system.



Sometimes referred to as the “Transecting Baseline” method, this technique is a very desirable method to use when possible.

To use the baseline method

Establish a Reference Point

In the example above the Reference Point is the intersection of two existing curb lines. If the reference point is the intersection of two imaginary lines, mark that point before starting to measure.

Establish a Straight Reference Line

This line can be set up along an existing line (curb or roadway edge); established between two known and fixed points (utility poles); or along a known compass bearing from a known and fixed point. In the case of an interior reference line, establish the line perpendicular to an existing wall.

Collect the Needed Measurements

All measurements are recorded in relation to the reference point and reference line. Objects will typically be located in terms of their distance either north or

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Scene Photos – General Requirements

Purpose & Needs

As with other methods of crime scene documentation, proper crime scene photography will:

- Aid in a reconstruction of events
- Refresh the memory of investigators
- Help relate the story to those that were not at the scene
- Create a permanent record of the scene
- Document the condition and location of items of evidence

Field notes, reports, sketches, videotape and photography are all interrelated in the scene documentation process. And while none can replace the other, photography is perhaps the most frequently used and readily accepted technique. Any person responsible for processing crime scenes must have a good working knowledge of photography or have ready access to someone who does.

Remember - photography is a means of communication. The goal of the incident scene photographer is to compile a photographic story that documents – from start to finish – what has happened at the incident scene.

Photography Requirements

To be introduced at trial, photographs are required to be fair and accurate representations of the scene or items of evidence, as they existed when the photos were taken. Someone that is knowledgeable about what the photographs show must introduce the photos into evidence. Generally, although not necessarily, this will be the person who has taken the picture.

There are several requirements for crime scene photography.

- Include an identifying shot in the first frame (I.D. card)
- Take photographs from a normal viewing angle
- Avoid using and extreme wide angle lens or lens setting
- Photograph from general to specific (overall & close-up photos)
- Include a scale in close-up photos of objects
- Complete a photo log

Beside the above, crime scene photos can be divided into two categories; General Scene Photos and Forensic Examination Quality Photos.

Properly taken crime scene photos should:

- Be Clear and in focus
- Exhibit a good depth of field
- Be properly lit and exposed
- Not distort the evidence
- Provide correct color balance

General Requirements

Guidelines

- Photograph the scene in its original state
- Avoid capturing equipment, people, etc. in photos
- Take overall photos from a normal, eye-level viewing perspective
- Whenever practical, use a “normal” lens

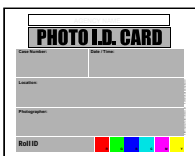
Tell the Story

Typically, general scene photos will be the “story telling” documentation photos of the incident and will usually be the first photos taken at a scene. Before starting, the photographer should have a good understanding of the nature of the incident and what has happened within the scene. This understanding can come from a walk-through of the scene and/or conversations with other investigators at the scene. These general scene photos should include documentation of

- Identifying shot establishing the scene location
- Overall conditions of the scene, exterior / interior
- Approach paths to the scene
- Actions of person(s) within the scene (witnesses, victims, first responders or offenders)
- Locations of evidence items within the scene
- Flight paths from the scene

Documenting the Scene

Identify the Incident



The first frame of every roll of film should include an I.D. card that includes incident information.

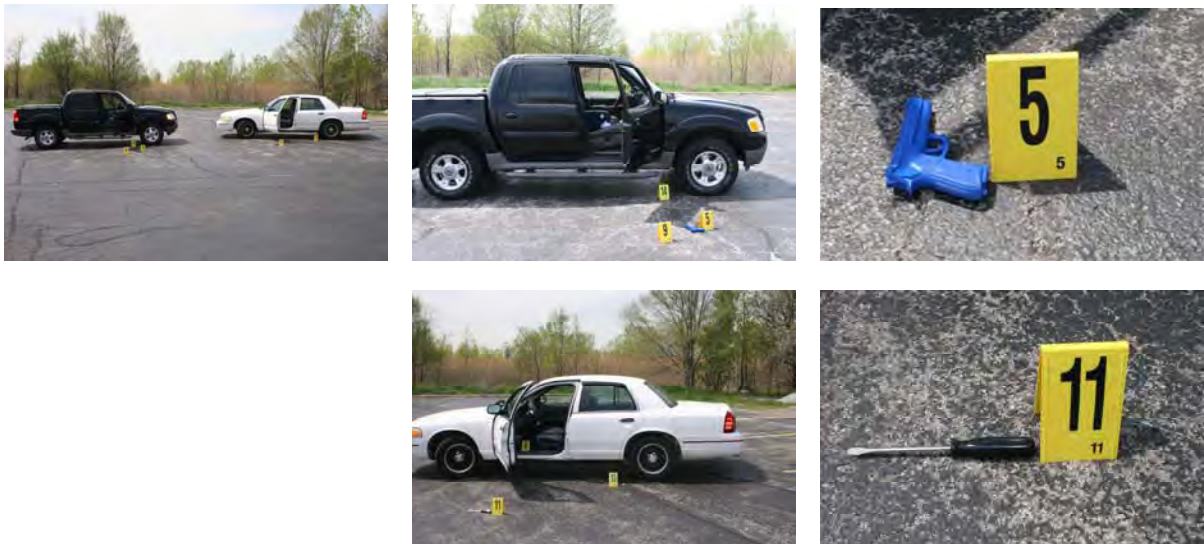
Preferably, the I.D. card should include at minimum the incident number, as well as the date and time that a particular roll of film was taken. In major case investigations where many rolls of film may be shot, this information will help keep the rolls in order and document when various aspects of the investigation were performed.



Photographing the scene.

Science Concepts: Interpreting photographs, problem solving, communicating, applying concepts.

Example – Progressive photography technique, overall, mid-range & close-up photos.



In addition to overall, mid-range and close-up photos, the photographer should strive to document the scene with 360° coverage. This is accomplished by taking a series of photos that cover the scene from various angles or at least from four opposing sides. These photos should overlap in their coverage of the area or object. For indoor scenes, these photos can be taken from the four corners of a room. Significant items within a scene, such as a body, should be photographed along the axes from four sides whenever possible. A photographer not having access to a wide angle lens, may have to use more than four photos to achieve the desired coverage.

In addition to photos taken from all angles, pattern evidence located at a scene should be photographed with the camera at a 90° angle to the pattern (film plane parallel to the pattern). This technique provides the most accurate documentation of the pattern. Examples of pattern evidence includes

- Footwear & tire tracks
- Burn patterns
- Bloodstains
- Crash damage to vehicles
- Injuries

(See examples – next pages)

Types of Prints

Friction ridge detail, useful for establishing the identity of persons connected with crime scenes, is typically recovered from scenes in the form of fingerprints and palm prints. Less likely to be found, although just as valuable is friction ridge detail recovered from the soles of the feet.

There are three different form of friction ridge detail that can exist at a scene

- Patent
- Latent
- Plastic

Patent Prints

Patent prints are those prints that can be viewed as they exist without any development processes being applied by the investigator. Typically patent impressions result when the friction ridge surface leaving the print is contaminated with some type of material. Examples of contaminants include dirt, dust, paint, grease and blood.

Depending on the contaminant, a patent print may be further enhanced through the application of appropriate chemicals. Recovery techniques for patent prints will include photographing the print and if possible, collecting the item that bears the print. Patent prints that exist in dust-like materials may frequently be lifted with conventional lifting mediums (e.g. tapes or putty).

Latent Prints

Latent prints are those prints that are not readily visible to the naked eye. These are the prints that require the application of various development processes (e.g. powders and chemicals). Once these prints have been developed, they can be recovered through photography, lifting mediums or retention of the item bearing the print.

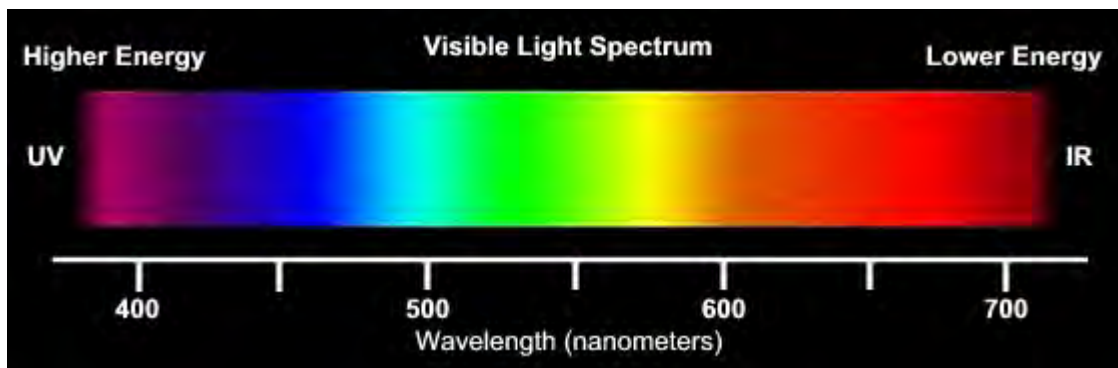
The method used for developing the latent print will depend on the nature of the surface being processed. There are two types of surfaces that need to be dealt with – porous and nonporous.



Collecting and processing fingerprint evidence.

Science Concepts: Classifying, forming operational definitions, comparing & contrasting, making judgments, sequencing and problem solving.

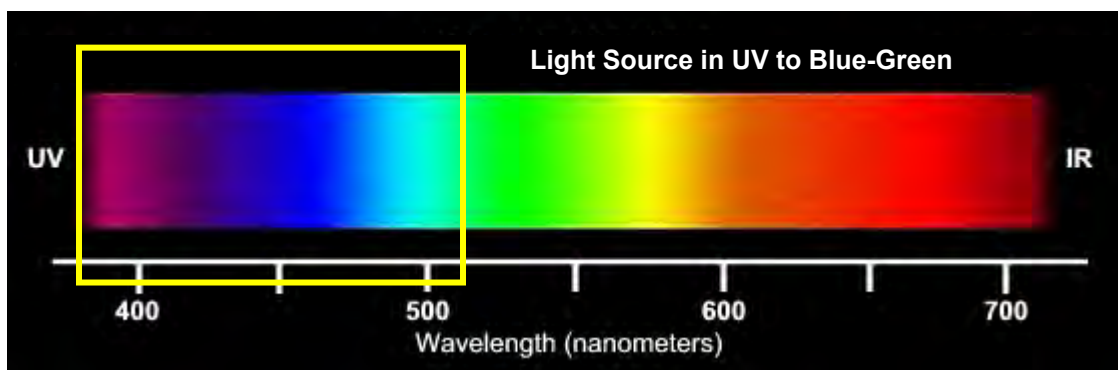
Theory of Light Application – Fluorescence



Light is a form of energy. Light energy, when applied to certain materials, will cause the molecules of those materials to vibrate. This vibration of molecules in turn results in the substance re-emitting the light energy that has been absorbed. This newly emitted light has less energy than the light initially used for the excitation, and will be a different color – shifted toward the red end of the spectrum.

Substances that re-emit light only while they are being excited by light sources are said to be fluorescent. Take the light source away, and the re-emission of light stops. Fluorescent dye stains and fingerprint powders have this quality. They can be effectively used to provide contrast between the developed impression and the surface that it is on.

Typically, light wavelengths of 365 (UV) – 510nm (blue-green) are best suited for fluorescing these materials. Using a light source that can be tuned to produce a very specific wavelength within this range will generally produce better results.



Typical light wavelengths used to fluoresce latent print powders and dye stains range from long wave UV (365 nm) to 510 nm (blue-green).

Footwear & Tire Track Evidence

Overview

Impression evidence is the most common type of evidence recovered from scenes of crime. This type of evidence encompasses:

- Fingerprints
- Bite Marks
- Footwear
- Tire Track
- Tool Marks
- Cloth & Fabric Impressions

Anytime one object comes in contact with another there is the likelihood of a material transfer. Or, if the contact is by a hard surface against a softer surface, the formation of indentations or striations.

Footwear and tire track evidence, for many reasons, is frequently overlooked. In many instances the investigator may not be aware of the value this type of evidence has in an investigation. If not recognized and protected, this evidence is easily destroyed.

General Considerations

Footwear and tire track evidence impressions can play a vital role in criminal investigations. Like most types of impression evidence they may exhibit individual characteristics and unknown impressions may be matched to known items based on these characteristics. In some instances, the significance of this match may be likened to finding the fingerprint of a suspect at a crime scene⁶.

Even if individual characteristics are not present in a recovered impression, the impression may supply additional information such as the manufacturer and type of a particular shoe or tire. This could lead to identifying the number of suspects present at a scene and/or their actions within a scene or potentially identifying a particular type of vehicle. The value of the information supplied by this type of evidence should not be underestimated.



Collecting and processing footwear & tire track evidence.

Science Concepts: Classifying, measuring, forming operational definitions, comparing & contrasting, making judgments and problem solving.

⁶ People v. Campbell, 146 Ill. 2nd 363 (Illinois Supreme Ct. 1992)

Biological & Trace Evidence Contents

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Collection Techniques

Biological Evidence Collection Techniques

- ✓ Photograph stains prior to collection
- ✓ Collect entire object when possible
- ✓ Swab the bloodstain using sterile swabs moistened with distilled water
The amount of water you use to moisten the swab is dependent on the size and concentration of the stain. If you have a small or dilute stain – only use one drop of water to moisten the swab. If the stain is more concentrated or large, use more water to moisten the swab
- ✓ Avoid scraping the stain
Scraping the stain increases your exposure to bloodborne pathogens
Scraping also increases contamination
- ✓ Collect the most amount of the stain as possible
- ✓ Collect the stain prior to any fingerprint enhancement or blood enhancement techniques when possible

Packaging Biological Evidence

- ✓ Air dry all biological evidence before packaging
- ✓ Only use clean paper products (do not “recycle” paper bags)
This includes cardboard boxes for swabs and knives. Do not put these objects in plastic tubes
- ✓ Package each item separately
- ✓ Label each package with a Biohazard sticker
- ✓ Label each package with the case number, your initials, date, exhibit number AND the location the item was found (or from who the item was collected)

Storage of Biological Evidence

- ✓ Objects or specimens that have been air dried can be safely stored at room temperature.
- ✓ Liquid samples of blood or urine that have been collected for toxicological purposes must be refrigerated.
- ✓ Urine collected for DNA purposes and feces collected for the same reason, should be frozen. Freezing this evidence inhibits bacterial activity that can degrade the DNA.
- ✓ Metal objects having dried stains present should NEVER be stored in a refrigerator or freezer.

Evidence Retention

- ✓ Given the rapid pace of technology and constant advances being made in the area of DNA analysis, consideration should be given to retaining any evidence that holds potential for DNA examination.

Definitions

Presumptive Test: A presumptive test is a quick chemical test, usually involving a color change, which is used to determine if further testing is needed.

Catalytic Test: Catalytic presumptive tests are based on the principle that the heme in hemoglobin in blood possesses a peroxidase-like activity. This activity breaks down peroxide. If one of the reagents is present, the breakdown products of peroxide will oxidize the reagent and the reagent will change color.

Examples of catalytic presumptive tests include

- Luminol
- Phenolphthalein
- Tetramethylbenzidine (TMB)
- Hemastix® (TMB based)
- Leucomalachite Green (LMG)
- Leucocrystal Violet (LCV)
- Orthotolidine

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Phenolphthalein Presumptive Test

Phenolphthalein Test: The phenolphthalein test is a catalytic presumptive test for blood and it is the most specific presumptive test for blood, reacting only with horseradish.

Order of Chemicals: Add the chemicals in the following order:

1. Ethanol
2. Phenolphthalein
3. Hydrogen Peroxide

Positive Reaction: A quick color change to pink after the addition of hydrogen peroxide. Observe the color change within 10 seconds.



False Positive Reaction: The phenolphthalein presumptive test should be used as a three-step test: ethanol, phenolphthalein, and hydrogen peroxide. The three-step test will help eliminate any false positives. If the color change occurs after the second step – this is a false positive.

Overview

Biological evidence can play an important role in the investigation of a variety of incidents. This type of evidence can be used to:

- Identify suspects or victims
- Link suspects / victims to a scene
- Links suspects / victims to each other
- Place a suspect of a victim within a scene
- Support or refute statements made by parties involved

Blood evidence is the most commonly encountered type of biological material although semen, urine, saliva, hair and fecal material may also be found.

Some examples of this type of evidence and its relation to various scenes include:

- Blood or hair evidence used to place individuals inside a motor vehicle at the time of a crash
- Blood left at a crime scene whenever sharp edged objects (knives, broken glass, etc.) are involved
- Saliva deposited on food or drink vessels (eating / drinking at burglary scenes)
- Semen, vaginal secretions, saliva and hair recovered after a sexual assault

Bloodstain Patterns

Properly done, the examination of bloodstain patterns present at a scene can provide valuable information that will aid the investigation. Important aspects of bloodstain pattern examination include:

- The condition of the stains when first observed
- The nature of the stain
- The surface that the stain is on
- A detailed description of the scene
- The size of the stain
- The shape of the stain
- The distribution of a group of stains within a pattern
- The specific location of a stain within a scene