Institute for Security Preparedness

Crime Scene Management

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The Institute for Security Preparedness adheres to the International Organization for Standardization (ISO)which is internationally recognized standards, operating under ISO 9001 for Quality Management and ISO 21001 for Educational Organization Management systems, ensuring excellence in both training and organizational practices.

ISP also maintains a long-standing partnership with the International Foundation for Protection Officers supporting the Certified Protection Officer (CPO) program in Arizona and advancing professional standards in security training.

Introduction to Crime Scene Management (CSM)[1]

This manual is designed to help you understand the **fundamentals of Crime Scene Management (CSM)** and how these principles can open several career pathways in the field of criminal justice, security, and organizational investigation. Crime Scene Management involves much more than simply responding to an incident. It encompasses:

- Protecting the scene
- Preserving evidence
- Documenting through photography
- Collecting and packaging evidence
- Interviewing witnesses or involved parties
- Submitting evidence for scientific examination or secure storage

These tasks are conducted not only to support potential prosecution but also for internal audits, insurance claims, or administrative actions such as employee termination.

The Role of Incident/Crime Scene Management

Incident or Crime Scene Management is about following and understanding organizational protocols while maintaining protection, safety, and preservation measures that ensure the integrity of the scene and evidence. The CSM certification integrates Crime Scene Investigation (CSI) principles to demonstrate how an effective investigation for law enforcement or other industries can be conducted even with minimal equipment or resources.

Who is CSM Designed For?

The CSM certification is an entry-level credential designed for individuals in:

- Security
- Loss prevention
- Insurance investigations
- Corrections
- Military
- Law enforcement
- Or any professional field dealing with potential loss, theft, or accidents

The field of criminal justice is broad, and the skills developed through CSM training apply to many industries beyond traditional policing.

Why CSM Certification Matters

Regardless of your role or organization, crime and incident management is crucial from beginning to end. Every scene is unique, ranging from private business incidents, Shoplifting or theft cases, workplace accidents, insurance investigations, or Law enforcement criminal cases.

Earning a **Crime Scene Management Certification** demonstrates that you have, take measurable steps to validate your investigative skills, achieved mastery in a specialized and respected area of criminal justice, and committed to upholding and follow industry standard.

In summary, the CSM certification equips you with confidence and credibility to manage investigations effectively even when resources are scarce. It establishes a professional foundation that employers value, whether in private industry, government, or law enforcement.

[1] T. Trimpe 2006 http://sciencespot.net

Dr. Edmond Locard and the Exchange Principle

It was Locard's belief that when a criminal came in contact with an object or person, a cross-transfer of evidence occurred (Locard's Exchange Principle). The field of forensic science owes much of its foundation to Dr. Edmond Locard, a French criminalist often called the *"Sherlock Holmes of France."* Born in 1877, Locard's work established one of the most enduring principles of modern investigation: *every contact leaves a trace.* This simple but powerful idea forever changed the way crime scenes are examined, and evidence is understood. At the heart of Locard's contributions is his revolutionary idea. This concept, known as the **Locard Exchange Principle**, suggests that no matter how small or seemingly insignificant, physical interactions between people, objects, and environments leave behind evidence.[2]

Examples of these transfers include:

- Fibers from clothing
- Hairs or skin cells
- Soil or dust particles
- Wood shavings or metal filings
- Paper fragments or paint chips

Each exchange, though often invisible to the naked eye, may serve as a crucial link in connecting suspects to victims, weapons, or crime scenes. It is even possible to track a person's daily movements by examining his or her clothing.[3]

Planning

With any investigation or incident, failing to plan can be detrimental. Have an operational procedure in place on what types of cases and incidents will be investigated, who will be involved, what types of items will be collected, how items will be stored, and what cases require internal or external help. Planning can include emergency situations that are defined by your company. Northern Arizona University (2015) writes through planning, "establish policies, procedures, and an organizational structure for response to major emergencies occurring on or near the campus".[4] Capability planning helps manage resources, risks, changing circumstances, preparedness, and goals.[5] Planning requires acceptance from management and employees.

What is a CRIME SCENE? A **crime scene** is *any physical location in which a crime has occurred or is suspected of having occurred.* Most people think a crime scene only involves homicide and the police; however, crime scenes can be traffic collisions, burglaries, thefts, deaths, crimes against people, or property damage or vandalism. Both governmental and private organizations need individuals trained in incident/crime scene management. *Certain cases are considered civil but may require the same understanding of the incident/crime scene management to protect the assets of your organization.* Using the same principles as investigation, the CSM can handle any situation at work to mitigate risk.

An investigation can be different for each organization; however, the process may be similar. In **retail**, *investigations can include shoplifting, internal thefts, audits, interviewing, liabilities, or even identify customer service protocols are being followed.* Just like a criminal crime scene, the person conducting the investigation is following a process to determine if a loss or protocols are not being followed. Any investigation takes resources if the organization wants to reach a desired outcome. Regardless of the type of scene or investigation, having trained, skilled, and certified individuals ensure quality control, non-bias, and accurate cases for future outcomes such as criminal or civil cases. An **organization who fails to properly investigate incidents** *may lead to internal dishonesty, unacceptable behaviors, moral issues, and lack of resolution.*

Time-Limited Crime Scene Investigation[6]

In some instances, *deteriorating security or environmental conditions* limit the amount of time available for the investigation of the crime scene. While these time limits will not allow for a thorough crime scene investigation to be conducted, the following

[2]https://www.encyclopedia.com/science/encyclopedias-almanacs-transcripts-and-maps/locard-edmond?utm
[3] https://www.crimemuseum.org/crime-library/forensic-investigation/edmond-locard/
[4] https://nau.edu/wp-content/uploads/sites/26/Loss-Prevention-Manual.pdf
[5] https://www.cdc.gov/cpr/readiness/00_docs/CDC_PreparednesResponseCapabilities_October2018_Final_508.pdf
[6] https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf

procedure will maximize the use of the limited time onsite. Conditions such as wind, sun, rain, snow, and temperature can play key roles in the destruction of the evidence at a crime scene.[7] Water can wash away evidence or cause cross contamination. Heat can destroy biological evidence. The wind can blow evidence away. Certain circumstances may cause adjustments for preservation and collection. In such circumstances, preparation prior to staging or entry into the crime scene area is paramount. This could include a site survey (e.g., in-person, photographic, photography, photogrammetric, or video-graphic) prior to the team's arrival at the scene or conducting extensive interviews of any witnesses from the area.

Elements of this preparation and execution are designed. Determine the time available to remain at the crime scene based upon best knowledge of time-limiting factors. Determine the most critical objective of being on the site of the investigation, e.g., removal of a deceased body, identification of suspect, collection of explosive residues. Determine the equipment needed to fulfill the objective. Pre-packaged kits should be used. Determine any specialized personnel that may be needed on-scene for this investigation. Develop a documentation and collection plan to include:

- Type and nature of documentation expected
- Priority of evidence collection
- Responsibility for onsite collection
- Responsibility for evidence custody

The **Golden Hour** *refers to the critical window of opportunity immediately following an incident or crime in which the most valuable and time-sensitive information or evidence can be collected.* During this period, evidence is at its freshest, least disturbed, and most reliable, making swift action by investigators essential.[8] The Golden Hour underscores the importance of immediate response, proper scene security, and coordinated investigation. Failing to act quickly risks the loss of critical, irreplaceable evidence, which can directly affect the outcome of an investigation and subsequent prosecution.

Why the Golden Hour Matters

- **Witness statements** – People's memories are sharpest immediately after an event. As time passes, recollections become distorted, forgotten, or influenced by outside factors.
- **Physical evidence** – Biological materials such as blood, saliva, or touch DNA degrade quickly due to heat, moisture, and microbial activity.
- **Environmental factors** – Weather, temperature, or natural disturbances can alter or destroy evidence within hours. For example, rain may wash away footprints or tire tracks, while sunlight may fade bloodstains.
- **Digital evidence** – Surveillance systems may automatically overwrite recordings within 24–48 hours. Electronic data such as texts or GPS logs can also be lost or altered if not secured immediately.

Real-World Examples

- **Footprints** *in snow or mud may last only minutes before melting or being trampled by onlookers.*
- **Bloodstains** *outdoors can be diluted or washed away by rain, reducing DNA recovery.*
- **A witness** who initially provides a clear description of a suspect may remember less detail—or unintentionally alter details—after only a few hours.
- **Surveillance videos** *in convenience stores and banks often overwrite itself daily or weekly, making timely retrieval essential.*

Scene Response and Safety

Regardless of the situation whether responding to a call or inadvertently coming across a scene, your personal safety and the safety of others is always the highest priority. Never compromise safety to secure evidence or approach a scene. All responses should be carried out in strict accordance with your organizational policies and procedures. Your role, position, and the structure of your organization will define what type of response is appropriate and what actions you are authorized or required to take. Always defer to established protocols, and when in doubt, seek guidance from supervisory staff before proceeding.

[7] https://www.crime-scene-investigator.net/crime-scene-contaminationissues.html#:~:text=Environmental%20conditions%20may%20also%20play,evidence%20at%20a%20crime%20scene.
[8] ACPO (2007). Guidance on the Management, Recording and Investigation of Missing Persons – introduces the Golden Hour principle in policing.

Quick Reference

Do:

- Prioritize your personal safety and the safety of others above all else.
- Follow all organizational policies and procedures when responding to a scene.
- Know your role and responsibilities within your organization, act only within your authorized scope.
- Seek guidance from supervisors if you are unsure about the proper response.
- Always maintain situational awareness when approaching or at a scene.

Don't:

- Rush into a scene without assessing safety hazards.
- Act outside of your assigned role or authority.
- Compromise safety to secure evidence or get closer to the scene.
- Ignore organizational or legal protocols for scene response.

Arrival to Scene

Individual safety is the top priority for any first responder. Before approaching a scene, confirm that it is safe from potential hazards such as gas leaks, liquids, unusual odors or sounds, exposed electrical wires, aggressive animals, or armed suspects. Immediately request assistance from your organization or call 911 to report the incident. Until you are relieved by another responder or officially hand the scene over, you are responsible for maintaining its security and safety.

Be especially vigilant for potential terrorist-related threats, including Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) hazards. If you suspect a terrorist attack, report your concerns immediately to 911. Remember that your safety is the most important consideration; never compromise it to assess or secure the scene. The first person on the scene should **ADAPT**. This philosophy helps to organize your actions.

A- Assess the incident/crime scene management and assist the injured
D- Detain the witness(es)
A- Arrest the perpetrator
P- Protect the incident/crime scene
T- Take notes

Look for potential evidence that may have been scattered. *Document how you found the scene on a note pad or your cell phone.* Make sure you identify your entry/exit into the scene. According to Schiro (2019), "some things the officer should note include: the condition of the doors, windows, and lighting (both natural and manmade); if there are any odors present; if there are any signs of activity; how EMS or fire personnel have altered the scene; anything essential about the suspect (description, statements, physical condition, mental condition, intoxication, etc.); and anything essential about the victim".[9] Remember to **remain observant** *of any persons, vehicles, events, potential evidence, and environmental conditions.* Survey the area for *victims, witnesses, bystanders, and potential suspects.* If your organization allows for detaining suspects or others, please refer to their policy.

Establishing and Securing Crime Scene Boundaries

Protecting the integrity of a crime scene is paramount to preserve evidence and prevent contamination or destruction. The initial responding officer(s) should establish and control the crime scene's boundaries promptly. This includes:

- **Identifying the focal point**: Begin at the location where the crime occurred and extend outward to encompass areas where evidence may be found.[10]
- **Setting up physical barriers**: Utilize available resources such as crime scene tape, ropes, cones, vehicles, or existing structures like walls and gates to demarcate the scene.

[9] https://www.crime-scene-investigator.net/evidenc1.html
[10] https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf?

- **Documenting access**: Maintain a log of all individuals entering and exiting the scene to ensure accountability and preserve the chain of custody.[11]
- **Controlling access**: Limit entry to authorized personnel only, preventing unauthorized individuals from altering or contaminating the scene.[12]

It is advisable to establish a larger perimeter initially, as expanding it later can risk compromising evidence. Start by considering potential entry and exit points, as well as areas where evidence may have been moved. This approach helps maintain the integrity of the investigation and ensures that all relevant evidence is preserved.

Types of Scenes

Crime scenes are classified as primary or secondary:

Primary Crime Scene: This is the original location where the criminal activity occurred. It typically contains the majority of physical evidence and is the focal point of the investigation

Secondary Crime Scene: This refers to any additional location where evidence related to the crime may be found. Secondary scenes often extend outward from the primary scene and can provide supplemental information about the crime or the movements of suspects and victims.

Proper identification and protection of both primary and secondary scenes are critical to preserving evidence and maintaining the integrity of the investigation. When deciding how large or small to make your boundaries**,** remember that it is *easier to* ***shrink your scene than to extend it****.* Try to extend your scene initially; trying to *extend later may destroy or contaminate evidence*. **A simple rule of thumb** is to *start at the focal point and extend out to potential exit or entry points*, or how evidence may have been moved away from the scene. There are two types of crime scenes, primary and secondary.

Providing Medical Aid at a Scene

Once the scene has been secured, medical aid should be administered according to your organizational policies and training. Always use Personal Protective Equipment (PPE) when rendering first aid to protect yourself and others from potential hazards.

- Request advanced medical personnel immediately and provide initial assistance within your range of training.
- Direct incoming medical personnel to the injured while guiding them around any potential threats or evidence to prevent contamination.
- Document any evidence that may be disturbed during medical intervention, including all actions taken and the names and agencies of personnel involved.
- If anyone is transported to a medical facility, request the facility location for notification and follow-up purposes.
- Do not allow medical personnel to clean up the scene, as this may compromise evidence.
- Document statements made by victims, suspects, witnesses, or bystanders while receiving aid. You may also need to interview medical personnel about their observations or actions at the scene.

For additional guidance on medical assistance, the American Red Cross offers a free app that provides instructions for responding to a wide range of medical incidents.

Controlling and Detaining

According to the Department of Justice (2000), it is essential to *"prevent individuals from altering/destroying physical evidence by restricting movement, location, and activity while ensuring and maintaining safety at the scene"* (p. 14). To accomplish this, all individuals present at the scene should be separated**,** both to protect potential evidence and to preserve the integrity of information. Follow state and local laws, as well as your organization's policies, when detaining or controlling individuals at the scene. Proper management of people at a scene helps prevent contamination, preserves evidence, and facilitates effective investigation.

[11] https://www.ojp.gov/pdffiles1/nij/178280.pdf?
[12] https://archives.fbi.gov/archives/about-us/lab/forensic-science-communications/fsc/april2000/twgcsi.pdf

Transferring a Crime Scene

As soon as possible, the scene should be *turned over to the appropriate authorities or higher trained team members, which may include internal investigators or law enforcement.* When transferring the scene, brief the incoming personnel thoroughly, providing all information you have gathered, as well as a detailed account of the steps you have taken. Remain at the scene until you are officially relieved to ensure continuity and clarity. The person you brief and transfer the scene will be designated as the lead investigator. Some organizations may also have internal or external response teams that handle incidents according to established protocols. Proper handoff ensures the integrity of the investigation and helps maintain the chain of custody for all evidence.

Key Information

Confirm legal authority: *Before conducting any search, ensure you have proper legal authority, such as a valid search warrant or documented consent from the appropriate party.*

Follow policy and law: *Know and adhere to your organization's policies and applicable state laws governing searches.*

***Coordinate with authorities in death investigations**: If the case involves a death, contact the local District Attorney and Medical Examiner. The determination of the cause and manner of death often depends on evidence recovered at the scene. The Medical Examiner may respond personally or delegate a forensic investigator to process the scene.*

Crime Scene Response Flowchart

1. Personal Safety (Top Priority)

- Assess hazards: gas, liquids, smells, sounds, electrical wires, animals, suspects
- Call 911 or request organizational backup
- Watch for CBRNE threats

2. Securing the Scene

- Establish boundaries: tape, rope, cones, vehicles, gates, walls
- Start at focal point → extend outward to potential entry/exit points
- Identify **Primary** and **Secondary** scenes
- Log all personnel movements

3. Managing People

- Separate individuals to protect evidence
- Follow state/local law & organizational policies
- Document names, agency, movements

4. Medical Aid

- Use PPE
- Administer aid within scope of training
- Request advanced medical personnel
- Document any evidence disturbed & all personnel actions
- Record statements from victims, witnesses, bystanders

5. Photography

- Use organizational cameras
- **Overall photos** → full scene
- **Mid-range photos** → context & spatial relationships
- **Close-up photos** → details of evidence, with & without scale
- Maintain chain of custody

6. Conducting a Search

- Confirm legal authority: warrant or consent
- Follow policy & law
- For deaths: notify District Attorney & Medical Examiner
- Collect and preserve evidence

7. Transferring the Scene

- Turn over scene to proper authorities
- Brief incoming personnel thoroughly
- Remain until relieved
- Incoming personnel becomes **lead investigator**

Assigning Scene Team Roles

As soon as practicable, the team leader should select a crime scene team and assign specific responsibilities. The number and type of roles will depend on the size and resources of your organization; in some cases, several individuals may share or rotate responsibilities, while in smaller operations, a single investigator may be responsible for all tasks.

For instructional purposes, the following key roles are typically assigned:

1. **Team Leader** – Oversees the entire operation, ensures protocols are followed, and coordinates with external authorities.
2. **Photographer** – Documents the scene through overall, mid-range, and close-up photographs, maintaining chain of custody and proper labeling.
3. **Recorder** – Maintains detailed notes of observations, actions, evidence collected, and personnel movements.
4. **Sketcher** – Creates accurate sketches of the scene, including spatial relationships, dimensions, and placement of evidence.

Organizations will determine the total number of personnel involved and the specific duties for each role. Regardless of team size, every investigator must ensure that all responsibilities are completed thoroughly to preserve the integrity of the crime scene.

Contamination Control

All team members shall use Personal Protective Equipment (PPE) to protect themselves from potential hazards and to prevent contamination or cross-contamination of evidence.

Importance and Value of PPE:[13]

- **Protects Individuals:** *Shields team members from biological, chemical, or physical hazards, including* bloodborne pathogens, hazardous substances, sharp objects, and unknown environmental risks.
- **Preserves Evidence Integrity:** *Prevents the transfer of hair, fibers, skin cells, or other trace materials from investigators to the scene.*
- **Supports Legal Admissibility:** *Evidence collected in a scene protected with proper PPE is less likely to be challenged in court for contamination.*
- **Professional Standards:** *Consistent use of PPE demonstrates adherence to best practices and organizational protocols, reinforcing accountability and professionalism.*
- **Minimizes Cross-Contamination: Ensures that evidence from one area or case does not inadvertently mix with another, maintaining accurate forensic results.**

Team members should refer to **organizational policies** for specific PPE requirements, which may include gloves, masks, shoe covers, gowns, eye protection, and respirators depending on the nature of the scene. Proper use of PPE is a critical component of safe and effective crime scene management.

Personal protective equipment (PPE) is *a main source of protection for emergency and recovery workers.*[14]

In/Out Log

Maintaining an in/out log is a critical part of preserving the integrity of a crime scene. This log should record every person entering or exiting the scene and should be administered by a non-search team member to ensure impartiality. Only personnel directly involved in the investigation or search should be permitted access.

Everyone entering the scene must document their reason and purpose for being present. The format of the in/out log may vary depending on organizational policy and the type of case. In situations where an in/out log is deemed unnecessary, the reason must be justified in the official report. Proper logging helps maintain a chain of custody, minimizes contamination risks, and provides accountabilities for all actions at the scene.

Photographer

The role of the **photographer** *is to document the scene comprehensively*, not just what is immediately obvious. Photographs should capture the entire environment and illustrate how items may relate to crime.

Best practices for scene photography include:

- Begin with **360-degree overall photographs** of the scene.
- Maintain a **photographic log**, recording each photo taken.

[13] https://nij.ojp.gov/library/publications/crime-scene-investigation-guide-law-enforcement
[14] https://www.cdc.gov/niosh/topics/emres/ppe.html

- Capture **video documentation,** when possible, to provide additional context.
- Consider **overhead photography** and the use of drones if permitted by policy and law.
- Include the surrounding area, nearby buildings, vehicles, and people.
- In time-sensitive scenarios where evidence may deteriorate quickly, prioritize **rapid capture** of critical elements.

Photography ensures that evidence is preserved in its original context and supports later analysis, reporting, and courtroom presentation.

Sketcher

The **sketcher** creates a **permanent visual record** of the crime scene, documenting items, distances, and spatial relationships. Sketches complement photographs and videos by providing additional context and precision.

Key considerations for sketching include:

- Conduct a **rough sketch** at the initial scene to capture all relevant items and conditions.
- Use **graph paper** *to help maintain scale and organization.*
- For scaled drawings, a common ratio is **¼" = 1'**, though adjustments may be made depending on the scene.
- Accurately measure the position of every item depicted in the sketch. This is the most critical step in ensuring the sketch's reliability.

Sketches serve as a reference for investigators, support reports, and can be submitted as evidence in legal proceedings.

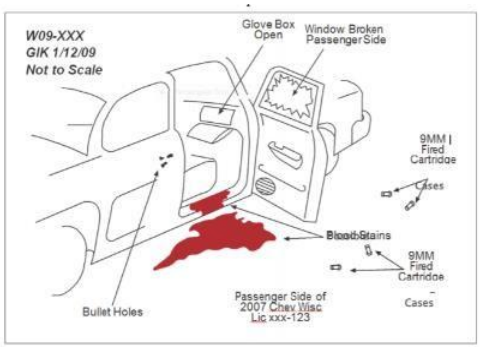
The rough sketch is drawn at the scene and should include the following:

Scene location	**Weather** conditions	**Legend**
Victim name	**Lighting** conditions	**Reference points** indoors –
Type of crime	**Scale** or scale disclaimer	walls/doors - outdoors / light
Date	**North** direction	poles, power poles, or
Time	**Evidence** (drawing)	sidewalk/driveways
Case number/DR	**Measurements** (width, length,	intersecting at streets
Sketch/Preparer and ID#	and height)	

The rough sketch has several areas that require completion. The top portion is basic information such as the case number, date, time, location, sketcher name, type of incident, weather conditions, scale of sketch day/night, school, and the north direction. The center section is for the rough sketch drawing. The legend is notes of explanation outside the sketch area. Evidence and item measurements contain evidence and their measurement. The article section is for items that are not evidence but have measurements. The last section is checking the items that apply.

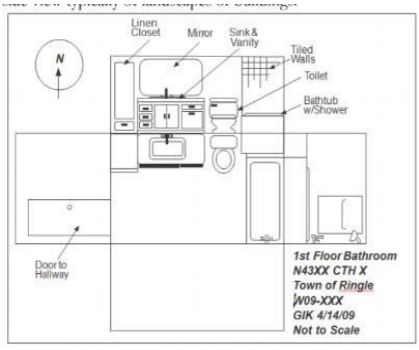
Evidence Legend

The sketch shows a record of how the scene looked upon your investigation. The sketch supplements your case notes and documents the entire area. The sketch view can be a *perspective or projection*. A **perspective sketch** *contains a vanishing point and depicts objects of evidence as they would appear to the eye with reference to relative distance and depth.*



Perspective sketch[15]

A **projection sketch** *usually contains only one viewpoint and depicts objects on one plane*. The overview sketch (of the horizontal plane) is the most common type of sketch and is usually done from a ***bird's eye view***; it shows the floor plan. [16] The final sketch is typically completed at the office and is a final rendition of the scene used for court purposes. The final sketch should include the same information gathered at the scene. The final sketch may be developed with computer-based programs. Some new technology utilizes a portable device that can perform a 360° scan of an incident/crime scene management in as little as 20 minutes, capturing millions of measurements of all objects visible to the scanner.



Projection sketch

Quick Tips for Drawing Effective Incident/Crime Scene Management Diagrams[17]

Follow these best practice tips to create effective incident/crime scene management diagrams that convey information quickly and accurately.

[15] https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf
[16] https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf
[17] Smartdraw, 2020, https://www.smartdraw.com/crime-scene/

- **Set the scope of your diagram.** Before beginning, determine how much of the area to illustrate: one room, multiple rooms, or the entire house. You should only illustrate relevant rooms and areas.
- **Gather information.** Incident/crime scene management diagrams must be as accurate as possible to be a useful resource when looking back on details of a crime long after the area has been cleaned up. If you were not there yourself, speak with anyone who either has first-hand knowledge or investigated the scene. Good sources would be the police, detectives, and any witnesses involved with the case, either directly or indirectly. If possible, visit the scene yourself to gather the most accurate information. Take accurate measurements between objects in the scene and their relative position to furniture or other landmarks.
    - **Create a background floor plan or landscape.** Recreate the parts of the scene as they would appear on a normal day. For a crime that occurred inside, this includes adding the walls within which the crime occurred, as well as furniture, doors, windows, closets, appliances, etc. For an outside scene, begin with streets, sidewalks, and buildings, before adding plants, benches, lights, cars, signs, and so on.
- **Add details.** Now add objects that were specific to the crime scene. If there was a victim, or anyone present, they should be added into the drawing as they were found directly after or during the crime. Also add anything the perpetrator may have left behind, used, or disrupted while in the area.
- **Label.** *Label each potential piece of evidence with a number or symbol. Then use arrows and text to show additional details or give information about that item. Also, give measurements for enough of the area that an observer could easily deduce the dimensions of anything on the diagram.*
- **Verify accuracy.** Consult witnesses and authorities who are knowledgeable about the crime to confirm that the information depicted in the diagram coincides with theirs.

Regardless of which method is chosen, when measuring any incident, the most important thing to remember is that every object depicted in the incident/crime scene management sketch must have enough recorded measurements to enable anyone looking at the field sketch to determine both the size and the location of each object depicted. The person who prepared the rough field sketch is responsible for the accurate collection and recording of all measurements.[18]

Elevated Sketching – Perspective

Start with the Basics: Draw a basic layout of the area, including the position of the ground and any structures or elevations. Use a *bird's-eye view to capture the scene from above.*

Include Elevations: Clearly mark the *height* of the elevated area. You might use dashed lines or a separate side view to show how high it is off the ground.

Detail the Scene: Include all relevant details, such as the location of evidence, and significant features of the structure. Make sure to *note the distance between the elevated area and the ground*.

Use Reference Points: Add *reference points to show the position* of the scene relative to its surroundings. This helps in understanding the spatial relationships.

Label Clearly: Use *labels and measurements to indicate heights, distances*, and locations. This helps in visualizing how different elements relate to each other.

Review and Revise: Ensure that the *sketch accurately represents the scene* and includes all critical details. Revise as needed for clarity and accuracy.

Initial Walk-Through

The **team leader** plays a critical role in the early stages of crime scene management. One of their first responsibilities is to conduct an **initial walk-through** of the scene. This process provides an overall understanding of the environment and establishes the **primary entry and exit points** for all personnel, ensuring controlled access and reducing the risk of contamination.[19]

[18] Tacoma Police Department - Forensic Services Policy and Procedure Manual – May 11, 2004

[19] Fisher (2022) → Best for techniques, photography, measurement, and practical evidence handling.

Purpose of the Walk-Through

According to the U.S. Department of Justice[20], the initial walk-through is an opportunity to:

1. **Identify initial evidence** – Recognizing items that may have evidentiary value, such as weapons, biological materials, or trace evidence.
2. **Determine next steps** – Outlining strategies for documentation, photography, sketching, and collection based on what is observed.
3. **Protect vulnerable evidence** – Deciding if certain items require **immediate protection or collection** due to environmental threats or other unforeseen circumstances.

Documentation and Prioritization

During this stage, the team leader may assign **evidence identification numbers** (e.g., numbered placards) to mark and document items in place. This establishes an organized approach to collection and reduces confusion later in the investigation.

The walk-through also allows the leader to **prioritize evidence collection** to prevent **loss, destruction, or contamination**. For example:

- Biological evidence at risk of degradation may be collected first.
- Trace evidence located near entry points may be prioritized before being disturbed by movement.
- Perishable or weather-exposed evidence may require urgent documentation and recovery.

The team leader may identify the need for *alternative equipment or specialist, better lighting, blood spatter, and ballistics.*[21]

Crime Scene/Incident Photography Guidelines

Depending on the type of case, photographs taken on a personal phone may be subject to subpoena. This means your phone could be seized and reviewed by the court following a judge's ruling.[22] To avoid this, the best practice is to always use an organizationally assigned camera or phone when documenting evidence. Crime scene photography should follow a systematic approach that includes overall, mid-range, and close-up photographs:

Overall photographs: Capture the entire scene from multiple angles to provide a general view of the location. These establish the context of where the crime occurred and how the scene appeared upon arrival.[23]

***Mid-range photographs*:** Transition the viewer from an "outsider looking in" perspective to a closer, more detailed view.[24] These photos show items of evidence in relation to fixed objects in the scene, demonstrating spatial relationships. When done correctly, they provide context, perspective, and scale.

Close-up photographs: Provide detailed images of specific items of evidence. These are typically taken with and without a scale to show fine details such as serial numbers, tool marks, bloodstains, or trace evidence. Close-ups ensure the evidence can be clearly examined during later analysis or courtroom presentation.
Following this sequence ensures that photographs accurately document the scene, provide continuity, and meet evidentiary standards for use in court.

Photographs should not be interrupted, systematic, and focused. Know the scene and make sure not to contaminate or destroy evidence. Any 35mm and/or digital single-lens reflex (SLR) camera with 12 megapixels or greater is recommended, however, any camera will work. With cell phone picture technology getting better each year, the use of a phone is an option. Make sure you do not erase any pictures and keep the memory card. Print out copies of your pictures as soon as possible.

[20] U.S. Department of Justice. (2020). Crime Scene Investigation: A Guide for Law Enforcement. National Institute of Justice.
[21] https://archives.fbi.gov/archives/about-us/lab/forensic-science-communications/fsc/april2000/twgcsi.pdf
[22] NIJ – Crime Scene Investigation: A Guide for Law Enforcement (2000)
[23] Fisher, B. A. J. – Techniques of Crime Scene Investigation (2012)
[24] Swanson, Chamelin, Territo – Criminal Investigation (2019)

Several retail and private organizations may have video surveillance or tape-recorded CCTV. At some point, you should locate video-evidentiary material from tape recordings documenting the date and time. If the case is an internal inspection, audit, or investigation for termination, build your case file like it's going to be transferred to law enforcement for prosecution.

Digital Camera

If you are new to the use of a digital camera, knowing the shooting modes may be confusing. Using the **auto mode** will *allow the camera to determine everything it needs for proper* ***exposure***, ***aperture***, *and* ***shutter speed***.[25] Depth of field when taking photographs at your scene is critical. The aperture will vary overall, mid-range and close-ups. ***Aperture, ISO, and shutter speed*** make up what is known as the ***exposure triangle***, which controls how a photograph is captured. ***Aperture*** refers to the size of the lens opening, determining how much light enters the camera and how much of the image is in focus, known as depth of field.[26] ***ISO*** measures the sensitivity of the camera's sensor to light, with higher ISO values helping in low-light conditions but often adding noise to the image.[27] ***Shutter speed*** is the length of time the camera's shutter remains open, which not only affects the amount of light captured but also whether motion is frozen or blurred.[28] Fast shutter speeds freeze action, while slower speeds allow more light in but can create motion blur if the camera or subject moves. ***Because these three settings must be balanced to achieve proper exposure, photographers who are not trained in adjusting the exposure triangle should avoid shooting in full manual mode and instead use automatic or semi-automatic settings for reliable results in both indoor and outdoor environments.***

A photographic log should chronologically document each picture. Each picture taken should be listed on your log with the following:

- Date
- Time
- Address/Location
- Item
- Name of person taking pictures

Photography at the Crime Scene

The quality and scope of photographs at a crime or incident scene will depend on the type of crime and the resources available within your organization. Whether you are a retail security guard, asset protection officer, or law enforcement professional, your role may include handling photography at the scene. If criminal charges are anticipated, photographs or copies may be required when the investigation is transferred to law enforcement.

Timing and Initial Documentation

Photographs should be taken as soon as the scene is secured. Early documentation ensures an accurate record of the scene as it was found upon your arrival. Key elements to capture initially include:

- Time and condition of the scene
- Evidence items and their locations
- People present, including victims, witnesses, or potential suspects

Always follow organizational policy when photographing employees, witnesses, or any individuals involved. Depending on your organization, you may serve as the photographer, or a trained professional may be assigned.

Types of Photographs

Overall Photographs: Capture the scene in its entirety. Take 360° photos from multiple angles to provide context and spatial relationships. Avoid disturbing any part of the scene while documenting.

Photographs from Various Heights Some investigations require images from elevated perspectives. This may include ladders, lifts, or drones. ***Always ensure the operator is trained, certified, and licensed, especially for FAA-regulated drones.***

[25] https://digital-photography-school.com/megapost-learning-how-to-use-your-first-dslr/
[26] https://info.verkada.com/surveillance-features/the-exposure-triangle
[27] https://info.verkada.com/surveillance-features/the-exposure-triangle
[28] https://info.verkada.com/surveillance-features/the-exposure-triangle

Professional Considerations

Always maintain the integrity of the scene. Ensure photographic logs are kept, recording time, date, location, and photographer. Use proper lighting and scales when capturing evidence to enhance clarity and support later analysis.

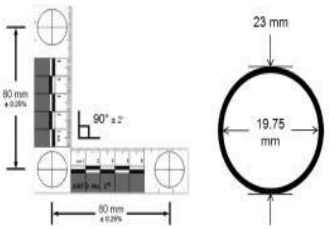
Close-Up Photography

After documenting the overall scene, the photographer should focus on **close-up photographs of each individual piece of evidence**. These images should capture **all sides of the item** to reveal any markings, defects, or other identifying features. Typically, each piece of evidence is photographed **twice**:

1. **Without a scale** – to show the item in its natural form.
2. **With a scale** – to provide accurate size reference.

An **ABFO scale** (American Board of Forensic Odontology) *is L-shaped, with graduated markings on each perpendicular leg*. However, **any scale** that shows both length and width can be used. In photographs, these scales allow investigators to **project a virtual grid** for measurements or comparisons.

Devices used for measurement can vary, including ***rulers, specialized forensic scales, or even smartphone measuring apps***, if they provide reliable dimensions. Proper use of scales ensures the evidence can be accurately analyzed, documented, and presented in reports or court proceedings.



ABFO Scale

If the property is recovered by your organization, close-up photographs must be taken. If the item has a serial number, make sure to photograph the make, model, and serial number. If you interview a possible suspect or detainee, take close-up pictures. These *photographs can be compared to video or CCTV pictures for identification.* Photographs may include clothing, jewelry, or tattoos. You may photograph the suspect holding the item(s) providing this practice is not in violation of organizational policies. Be sure to follow company policy and never take photographs in the sight of your customers.

Photocopying

If there is any doubt about the relevance of an item**,** it is recommended to make a copy rather than risk leaving potentially important evidence unrecorded. Photocopying is an acceptable practice for items such as **paper** documents, identification cards, or receipts**,** but each copied item must be clearly marked and identified**.** When copying evidence:

- Place the item on the copier so that **price tags, labels, serial numbers, and descriptions** are visible.
- Maintain accurate records linking the copy to the original item.
- Photographs taken at the scene can also complement photocopies, especially if the material is being turned over to law enforcement.

Whether the original item remains with the organization depends on tjurisdiction and organizational policy. In many cases, originals may be submitted with law enforcement while retaining a copy for internal documentation.

Modern technology provides additional options:

- Cell phone apps can scan or photograph documents and save them as PDF files.
- PDFs can then be emailed or printed for secure storage in organizational files, maintaining both accessibility and chain-of-custody integrity.

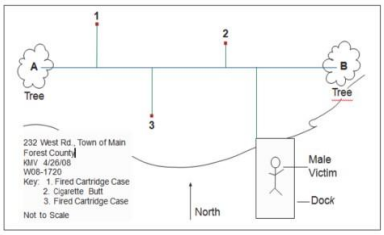
Juveniles

When photographing juveniles, you should always follow your agencies or organizational policies and procedures, as well as all applicable state and local laws. Photographs of juveniles should never be posted, shared, or made available for public viewing. These images are considered sensitive and must be managed with strict confidentiality. If prosecution is being sought, photographs of juveniles should only be submitted as part of the official law enforcement case file and maintained according to evidence-handling protocols.

Measurements

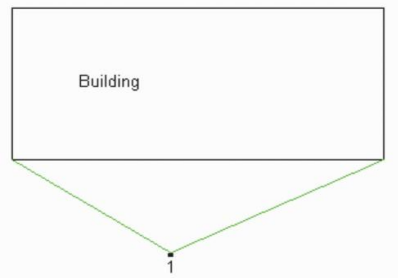
Regardless of which measurement you use, they are all based on having known starting points. These items should be permanent in nature. Ideally you want to use the same reference point for all measurements. [29] The type of case and manpower will determine the resources required. Once a team or individual has completed the close-up photographs of evidence and a *sequential photo log* updated, they can determine which type of measurements will be used. The type of measurements required will depend on your scene and the amount of equipment you possess. There is not an incorrect choice of measurements. The following searching methods may be used:

Transecting <u>Baseline</u> Coordinate Method − The transecting baseline coordinate method is used to measure items of evidence when there are numerous objects in the incident/crime scene management and other measuring techniques will not work. This is accomplished by laying a tape measure down so that it crosses the entire room or area to be measured. This first tape measure becomes the baseline for all other measurements in the crime scene. Measurements are then made perpendicularly from this tape by laying another tape measure at a 90-degree angle to the first tape and measuring out to the evidence.



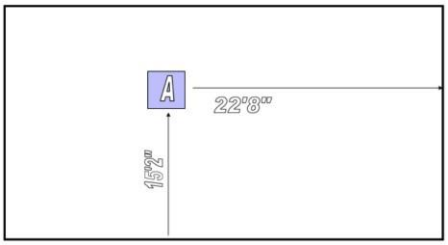
Transecting Baseline

Triangulation Method − The triangulation method utilizes *<u>two fixed</u> permanent objects* within the crime scene. Measurements are *taken from each fixed point to each piece of evidence.*[30]



[29] https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf
[30] https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf

Rectangular Coordinate Method − The rectangular coordinate method is used when *measuring the distance to an object from two mutually perpendicular objects, such as walls that meet at a 90-degree angle.*

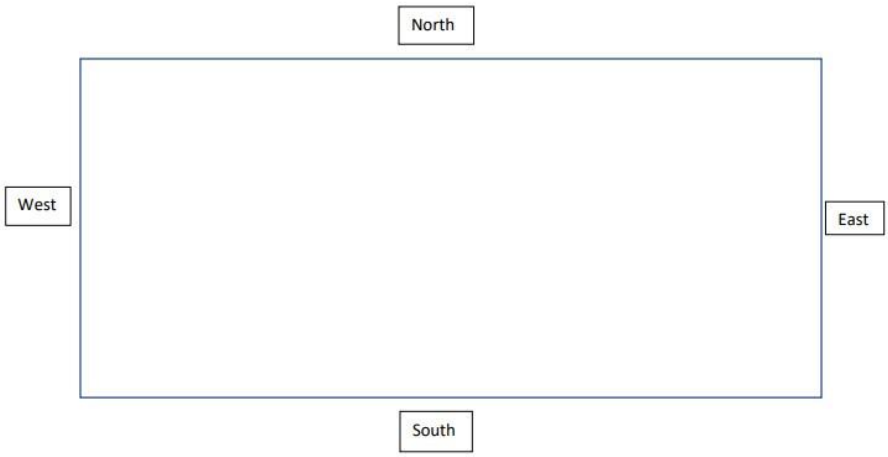


Rectangular Method

Polar Coordinate Method − The polar coordinate method is more appropriate for an *outdoor scene* in which only a *single fixed or reference point is present*. *Measure both the distance and direction (angle) an object is from a known reference point.* The angle can be measured with either a large protractor or an optical device such as a transit or a compass. The protractor technique with a 360- degree protractor is useful for underwater scenes.

The following information will help you document the scene in an organized way. Prior to determining what is the best measurement type, you must identify compass coordinate North, South, East, and West. North is typically up on the sketch:

Top view of a building showing all four walls with Directional Compass

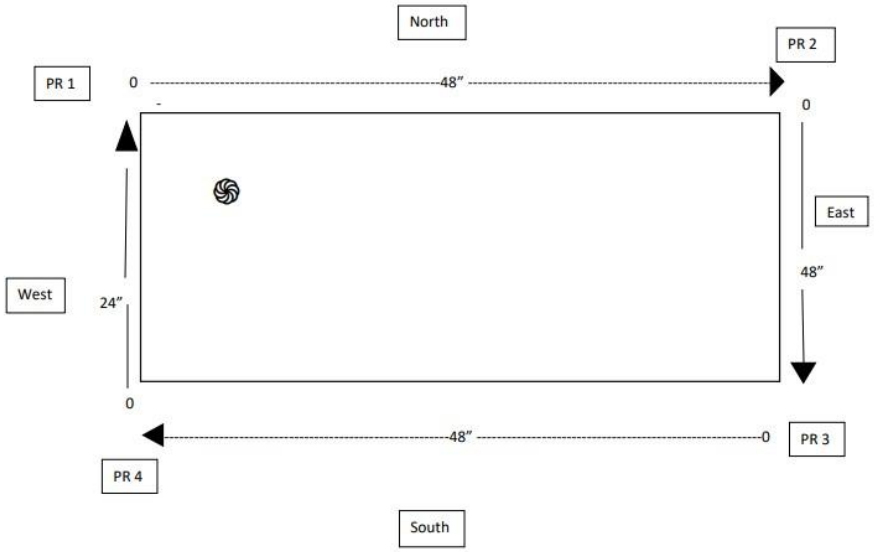


Establish reference points for this diagram and we will be using each corner (RP 1- RP4):

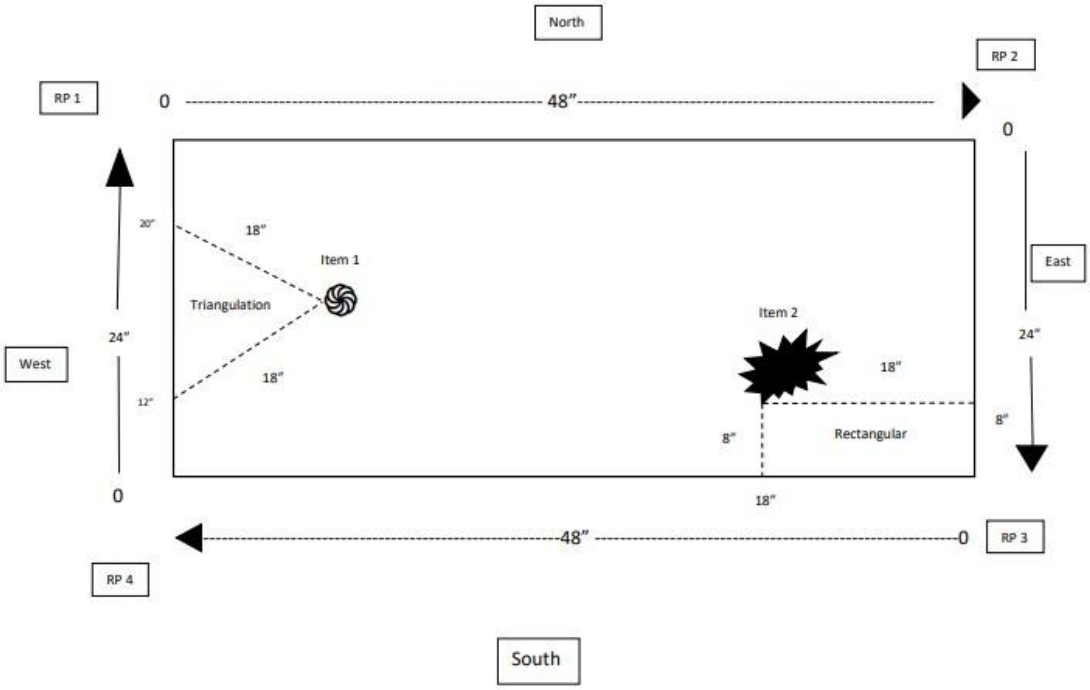
Top view of a building showing all four walls with Directional Compass

Measure each side starting with the zero point and going in the direction of the next RP. Always measure in sequence from RP1 to RP 2 and so on. This example depicts that RP1 starts at zero and goes 48" East to RP2.

Top view of a building showing all four measurements

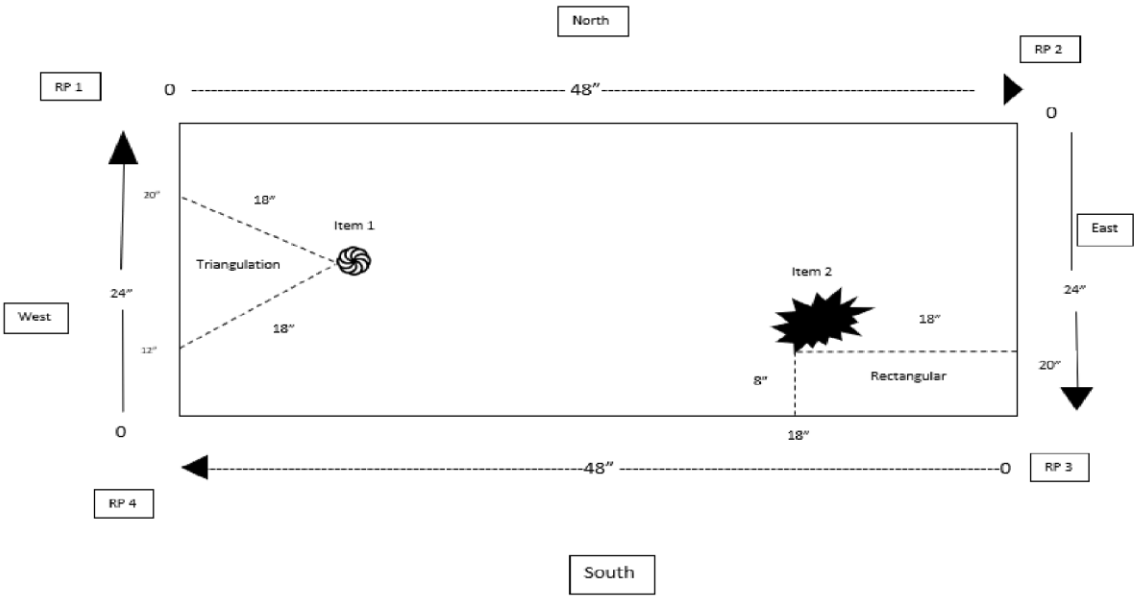


In the next diagram the evidence is shown and depicted as item 1 and 2. ISP understands that organizations may vary on how they teach measurement, reference points, sketching, and documentation. To simplify, ISP is using a top-down view with four sides, reference points, coordinates, two items of evidence, triangulation, and rectangular measurements. Item 1 shows triangulation and item 2 is set up with triangulation:



Final Sketch filled in with all measurements:

`Case #: 220925009	Date: 09/25/2022	Time **9:00 am**	Location 2601 South 24th Street	Your Name: John Smith	Crime Theft
Weather Clear	**Scale** ¼ "= 1' or Not to Scale	**Day** / **Night**	**Suspect** Keith Lyons	**School** **Yuma High School**	**North** ▲



Evidence Items and Measurements

Item #	Description	RP 1		RP2		RP3		RP4	
1	Wheel							12 N	18E
								20 N	18 E
2	Blood Spot			20 S	18 W	18 W	8 N		

Articles

Item #	Description	RP 1		RP2		RP3		RP4	

Photos: Yes □ No □ **Video:** Yes □ No □ **Tape Measure** Yes □ No □ **iPhone** □ **Android:** □ **Drone:** Yes □ No □ **CCTV:** Yes □ No

Team members *shall work together to measure evidence while providing the sketcher with the measurement directions and numbers. The sketcher will add the information to his or her legend.*

The rough sketch can be modified to meet your organizational needs, however, make sure all the detail listed about is present.

Using a Handheld Laser Distance Measuring Device in Crime Scene/Incident Documentation

Handheld laser distance meters are an efficient, practical, and accurate way to take crime scenes or incident measurements both indoors and outdoors, can be used by one person, and does not have any risk of the laser beam contaminating the evidence[31]. These devices are widely used by both professionals and amateurs because they are fast, reliable, and affordable. Basic models typically cost between $10–$50, depending on the manufacturer.

Key Features

Most devices can measure in multiple units (feet, inches, meters). For crime scene work, ensure the device is set to feet for consistency. Many models include functions for continuous measurement, area, and volume calculations. Simple one-button operation allows for quick measurement in the field.

Indoor Measurement Techniques

When measuring indoors, always use fixed reference points that will not move. These may include:

- Corners of walls
- Window and door frames
- Permanent fixtures (such as built-in counters or beams)

This ensures accuracy and repeatability if measurements need to be verified.

Measuring Height

- By aiming the laser upward or downward, you can quickly measure ceiling heights, wall heights, or elevation differences.
- Some devices allow for indirect height measurement using built-in angle sensors.

Using the Pythagorean Theorem

- Laser devices can be applied with basic geometry.
- For example, if you cannot measure height directly, you can measure the hypotenuse (angled shot) and one base length, then use the Pythagorean theorem to calculate the missing side.

Using the Pythagorean Theorem with a Laser Device

Sometimes it is not possible to measure a vertical distance directly (for example, the height of a wall, a tree, or a second-story window). In these situations, the **Pythagorean theorem** can be applied

The formula is: $a^2 + b^2 = c^2$

- **a** = one side of the right triangle (base/ground distance)
- **b** = the unknown side you want to calculate (height)
- **c** = the hypotenuse (measured with the laser at an angle)

[31] https://isp.idaho.gov/wp-content/uploads/Forensics/currentAMs//Field%20Services/Crime-Scene-Manual-Rev-09.pdf?utm

Example:

1. Place the laser on the ground a fixed distance away from the wall.
2. Measure the base distance (a) from the laser to the wall (e.g., 6 feet).
3. Point the laser to the top of the wall and record the angled distance **(c)** (e.g., 10 feet).
4. Use the Pythagorean theorem:

$$b^2 = c^2 - a^2$$

$$b^2 = 10^2 - 6^2$$

$$b^2 = 100 - 36 = 64$$

$$b = 8 \text{ feet (wall height)}$$

This process allows investigators to calculate heights or distances that are difficult to measure directly, using just a basic laser and math principles.

Basic Surveying Principles for Crime Scene Measurements

Surveying methods are important in crime scene documentation because they provide a systematic way to record distances and relationships between evidence items, landmarks, and structures. By applying basic surveying principles with a handheld laser, investigators can create accurate and repeatable scene maps.

Establishing a Baseline

A **baseline** is a straight reference line, often drawn between two fixed points (such as a wall or fence line). All evidence or scene items can then be measured at right angles (perpendicular) from this baseline. This method ensures measurements are consistent and makes it easier to reconstruct the scene later.

Leveling the Device

Always make sure the laser is **level** before taking a reading. Even small angles can introduce measurement errors. Some devices include built-in bubble levels or digital inclinometers, but a simple carpenter's level works if needed.

Using Yardsticks or Fixed Elevations

For outdoor or large indoor spaces, place the laser on a **yardstick or tripod** set at a fixed height (e.g., 36"). Use a second yardstick with a square plate or reflective surface to receive the laser. This creates a consistent measurement plane, reducing errors from uneven ground or obstructions.

Triangulation Surveying

From two known reference points, measure the distance to a single evidence item. When drawn on paper, these measurements form triangles, pinpointing the exact location of the evidence. This is highly accurate and commonly used when baselines are not practical.

Rectangular (90-Degree Offsets)

Similar to baseline surveying but focused on maintaining **right angles**. Evidence locations are measured by creating a rectangle (or square grid) from two perpendicular reference lines. Works well in rooms, hallways, or outdoor spaces with clear rectangular structures.

Recording Measurements

Always note **start and end points** (e.g., "from SE corner of living room to edge of couch = 8 ft"). Record measurements in **feet and inches** or **meters** but remain consistent throughout. Label evidence with measurement points on a sketch or digital diagram

Accuracy and Redundancy

Take at least **two measurements for verification** whenever possible. Redundant measurements reduce error and allow others to confirm your scene diagram later.

Safety Precautions

The laser should never be pointed at a person because it can damage their eyes and may cause blindness.

Using Cell Phone Apps for Measurements

Several free cell phone apps are available for download that can measure the distance of objects. These apps can be very useful in crime scenes or incident documentation when fast digital measurements are needed. While phone apps may vary slightly between iPhone and Android, both platforms provide similar results and can serve as convenient tools. However, accuracy depends on proper use. Investigators still need to:

Determine reference points (fixed objects in the scene, such as walls or corners). **Select the best measurement method** (baseline, triangulation, or rectangular coordinates) for the specific location.

Digital measurement apps are a quick solution, but they should always be used with careful documentation and cross-checking for accuracy. Make sure to consider your camera positioning and stability while holding the device. [32] Traditional measurement methods are accurate but are time consuming. Phone measurements are fast, point and shoot, and may eliminate or minimize items being in your way. Phone measurements eliminate the need for tape measures, especially if none are available.

Measuring Evidence Inside a Vehicle[33]

When documenting evidence inside a vehicle, accurate measurement is critical to maintaining scene integrity. Investigators commonly use tape measures or laser measuring devices, each offering distinct advantages. **Tape measures** *are simple, reliable, and effective for short distances, making them ideal for recording the positions of seats, pedals, objects, or other interior components.* They do not require power, are inexpensive, and provide consistent accuracy in tight spaces where lasers may be unreliable. However, tape measures can be cumbersome for longer distances or complex diagonals. **Laser measuring devices** *provide rapid, precise measurements and can quickly capture overall interior dimensions, including diagonals, without the need to stretch a tape.* Some digital lasers even store measurements for direct inclusion in reports. Limitations include the potential for reduced accuracy on reflective surfaces, dependency on batteries, and higher cost. Best practice for vehicle investigations is to use a tape measure for detailed evidence placement while employing a laser device for overall interior dimensions and sketches. Combining both methods ensures speed, accuracy, and thorough documentation, supporting a professional and defensible investigative record.

When documenting the interior of a vehicle, including the trunk, investigators should follow a systematic process to ensure accuracy and preserve scene integrity. Begin by securing the vehicle and removing unnecessary personnel to prevent contamination, then ***identify*** *stable reference points, such as seat corners, dashboard edges, or floor junctions.* Position the laser measuring device to maintain a clear line of sight to each point, keeping the device as perpendicular to surfaces as possible to reduce distortion. Measure key **interior dimensions**, including *floor-to-seat heights, seat-to-seat spacing, pedals, steering column, door openings, and the center console*. For the **trunk,** *fully open it and record distances between fixed points such as the corners of the trunk floor, lid edges, and hinge points, as well as the dimensions of any objects inside.* Complement all laser measurements with photographs or video and, when practical, verify critical distances with a tape measure. Record all measurements, reference points, and angles in detailed notes or sketch diagrams. By combining laser measurements with visual documentation and careful notetaking, investigators can create a precise, defensible record of the vehicle interior while maintaining the integrity of the scene (Fisher & Fisher, 2012; Houck & Siegel, 2018; NIJ, 2013). Take **photos** or **videos** while you measure and write down the numbers in your notebook. Using both measurements and pictures helps you make a clear “map” of the car’s inside. This way, if anyone needs to understand exactly where things were, your notes and measurements will show it clearly.

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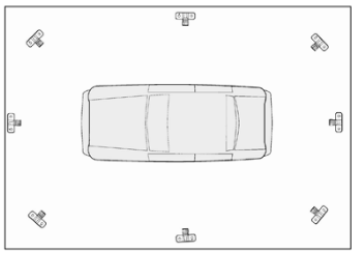
32 B. K. Sharma, R. Bashir, S. A. Philip and H. Kumar, "A Comparative Study of Mobile Applications for Crime Scene Measurements- A Digital Approach," 2019
33 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE), 2019, pp. 492-495, doi: 10.1109/ICCIKE47802.2019.9004348.

Photographing Vehicles

Capture overall photographs establishing the location of the vehicle in the scene or processing area.
Overall photographs should include all four sides of the vehicle at 90-degree angles and all four corners. Photograph the top and undercarriage of the vehicle as needed.

Photograph the license plate and Vehicle Identification Number (VIN). The VIN is usually found on the lower corner of the front windshield on the driver's side or on a plate or sticker attached to the inside doorframe of the driver's door.
Capture overall photographs of damage or evidence on the vehicle. Capture mid-range and close-up photographs as needed of damage and evidence. Photograph the interior of the vehicle, trunk or cargo area, engine
compartment as well as any concealed areas such as glove box and center console areas, and under the seats. The use of overall, midrange and close-up images should be applied



Cell Phone Technology

By looking at cell phone apps regularly, you may have access to current technology: Cell phone apps help with picture taking, measurements, documentation and more. See below for additional apps that may help (some may come with a cost):

American Red Cross – First Aid: **Features:** Provides step-by-step instructions for handling medical emergencies, including CPR, burns, and wounds.
ARuler Features: Uses augmented reality to measure objects and areas.
Apple Measure App Features: Utilizes augmented reality to measure objects and spaces; supports height measurements and level tools.
Timestamp Camera Features: Adds timestamp, location, and custom text to photos and videos.
NoteCam Lite Features: Allows adding notes, GPS coordinates, and timestamps to photos and videos.
WebMD Pill Identifier Features: Identifies pills based on shape, color, and imprint.
IPharmacy Features: Identifies pills using camera recognition and provides drug information.
SpyMeSat Features: Allows users to request satellite imagery for specific locations and times.
Blood Spatter Angle Calculator Features: Calculates the angle of impact for blood spatter analysis.
MagicPlan Features: Creates floor plans and 3D models using device camera.
Digital Compass Features: Provides compass directions along with GPS coordinates and altitude.
CamScanner Features: Scans documents and converts them into PDFs or images.
NightShooting Features: Enhances low-light photography for capturing images in dark environments.
Google Translate Features: Translates text, voice, and images in over one hundred languages.
Seek Thermal Features: Provides thermal imaging using compatible hardware.
TapMeasure Features: Creates 3D models of spaces and measures distances using augmented reality.
WreckCheck Features: Assists in documenting accident scenes with step-by-step guidance.
Cargo Decoder Features: Identifies hazardous materials in cargo based on placard numbers.
Field Area Measure: **Features:** Measures areas and distances using GPS coordinates.

Macro Mode[34]

Modern smartphones, such as the iPhone, include a **Macro Mode** feature that allows investigators to capture extremely detailed close-up images. This tool is especially valuable in documenting **trace evidence** such as fibers, hair, fingerprints, or tool marks at a crime scene

34 https://www.samsung.com/uk/support/mobile-devices/how-the-macro-camera-works-on-the-galaxy-a51/?utm

How to Use Macro Mode[35] [36] [37]

1. **Open the Camera App**
   Begin by opening the Camera app and selecting the standard **Photo** setting.
2. **Position the Camera**
   Place the object of interest within **one to five inches** of the iPhone's lens.
3. **Automatic Macro Activation**
   The iPhone will automatically detect the short distance and switch into **Macro Mode**.
4. **Close-Range Capability**
   Investigators can move as close as **2 cm (less than one inch)** from the object while still maintaining a sharp focus.
5. **Macro Indicator**
   When Macro Mode is enabled, a small **yellow "Macro" icon** will appear on the screen. This indicator allows the photographer to adjust focus in or out to achieve maximum clarity.
6. **Capture the Image**
   Hold the device steady and take the photograph. Using both hands and a tripod attachment is recommended to avoid blur at such close distances.

Android Devices

Unlike iPhones, many Android devices require users to manually select **Macro Mode** within the camera settings. Additionally, Android phones offer compatibility with affordable **clip-on macro or fisheye lenses**, giving investigators flexibility in capturing close-up evidence photographs.

Using Built-In Macro Mode

1. **Open the Camera App** (Launch the camera and select the **More** option). **Enable** "Pro" Mode from the available options, select Pro. This activates Macro Mode, allowing the device to focus on extremely short distances. **Position** the Camera
2. **Move** the phone close to the evidence item (usually within one inch). **Maintain** a steady hand to prevent blur.

Using Clip-On Lenses

For devices without built-in Macro Mode—or to achieve enhanced magnification—third-party lenses are available. These clip-on or case-mounted accessories are inexpensive (**$1.50–$25.00**) and provide excellent results with minimal practice.

- **Macro Lens**: Provides close-up magnification, ideal for trace evidence such as fibers or hair.
- **Fisheye Lens**: Offers extreme wide-angle views, useful for creative perspectives or full-room context shots.

Techniques for Success

- **Distance**: A macro lens typically requires the phone to be positioned within **1 inch** of the object.
- **Stability**: Use a **small tripod** to keep the device steady; even slight movement can blur a close-up image.
- **Lighting**: Employ **alternative light sources** (such as flashlights or external LED lights) to enhance sharpness and detail.

Lens Magnification Examples

- **Wide-Angle Lens**: 1× magnification (baseline view).
- **Telephoto Lens**: 2× magnification.
- **Macro + Telephoto**: When paired together, magnification multiplies:
  - Macro × Telephoto (10× × 2×) = **20× magnification**.

[35] https://support.apple.com/guide/iphone/take-macro-photos-and-videos-iphfaacf2eb0/ios?utm_source=chatgpt.com
[36] https://support.apple.com/guide/iphone/take-macro-photos-and-videos-iphfaacf2eb0/ios
[37] https://support.apple.com/guide/iphone/take-macro-photos-and-videos-iphfaacf2eb0/ios

Why It Matters in Investigations

Macro photography on Android devices enables the clear capture of small-scale details such as scratches, tool marks, or residues. With the addition of inexpensive external lenses, investigators can document evidence at magnification levels approaching professional forensic equipment making smartphones a powerful field tool

Panoramic

Panoramic photography allows investigators to capture **wide, continuous scenes** in a single image. This is especially useful at crime scenes for documenting **room layouts, large outdoor areas, or multiple pieces of evidence in context**.

How to Use Panoramic Mode[38]

iPhone (iOS)

1. Open the Camera App
   Select Pano from the camera mode options.
2. Position Your Phone
   Hold the phone vertically or horizontally, depending on the orientation you want.
3. Start the Panorama
   Tap the shutter button to begin.
4. Move Slowly and Steadily
   Sweep the camera in a straight line across the scene, following the on-screen guide. Keep the arrow on the line for smooth alignment.
5. Stop When Finished
   Tap the shutter button again or continue to the end of the guide to complete the panorama.

Android

1. Open the Camera App
   Select More → Panorama (names may vary slightly depending on the phone brand).
2. Start Capturing
   Tap the shutter button to begin the panorama.
3. Sweep Slowly
   Move your phone in a straight line, keeping pace with the on-screen guide. Avoid jerky movements to prevent distortion.
4. Complete the Image
5. Tap the shutter button again or stop at the endpoint.

Tips for Forensic Panoramas

- Use a tripod or stabilizer if possible, to reduce blur.
- Plan your sweep direction to include all key evidence and reference points.
- Avoid moving objects in the scene while sweeping (people, pets, or vehicles).
- Take multiple panoramas from different angles to ensure complete documentation

Why Panoramic Photography Matters

- Captures entire rooms or large outdoor scenes without missing context.
- Provides visual reference for investigators and court presentations.
- Useful for scene reconstruction and measuring distances when combined with other photographic techniques.

Mobile Phone Lens Attachments

Many smartphone photographers and investigators use **clip-on lens sets** to expand the capabilities of their phone cameras. A typical set often includes three lenses:

[38] https://support.apple.com/guide/iphone/take-panoramic-photos-iph7e06402b4/ios

- **Fisheye Lens**
- Provides a **wide, hemispherical view** of the scene.
- Ideal for capturing **entire rooms, large outdoor areas, or creative perspectives**.
- Produces a characteristic **curved effect** at the edges of the image.

Macro Lens

- Designed for **extreme close-up photography**.
- Allow investigators to capture **tiny details** such as fibers, scratches, tool marks, or other trace evidence.
- Requires holding the phone **very close to the subject**, typically within **1 inch**.

- Expands the **native field of view**, up to **4× the standard angle**.
- Useful for capturing **wider scenes** without moving farther back.
- Provides a natural look without the extreme distortion of a fisheye lens.

Forensic Use Tips

- Always **stabilize the phone** when using macro or wide-angle lenses to avoid blur.
- **Plan your shots**: use fisheye for context, macro for detail, and wide angle for medium-range documentation.
- Label images with **lens type** to ensure proper interpretation during analysis or court presentation.

NoteCam[39] 

NoteCam *is a camera App combined with GPS information (including latitude, longitude, altitude, and accuracy), time, and comments.* It can leave a message and put all the information together into a photograph. When you browse the photos, you can quickly know their location and their further information.[32]

Night Mode[40]

Most modern smartphones include a **Night Mode** *for low-light photography, useful for documenting crime scenes in dim environments.* How to Use Night Mode:

1. Open the camera and navigate to **More → Night Mode**.
2. Tap the shutter button to begin capturing the scene.
3. If the area is very dark, use the **exposure lock** (usually in the upper-right corner) to adjust brightness.
4. Keep the phone **steady** or use a **tripod** to prevent blur.

Tip: Night Mode helps capture detail without washing out shadows or losing context in low-light areas.

Traffic Accidents

Companies can have one vehicle or a whole fleet. Accidents can occur on private property or on a dedicated public street. A **traffic accident** i*s as event that causes death, injury, or property damage on a roadway or private property involving a vehicle, bicycle, golf cart, motorcycle, or machinery*.[41] Regardless, lowering the risk and liability of your organization is important. The CMS can take action to mitigate liability. Accident investigations can be conducted at the scene, after vehicles have been moved, or by evaluating police reports. Police reports may have skid mark lengths and a diagram to evaluate.

Distracted driving is the cause of so many accidents. Distracted driving can be manual, cognitive, and visual, or a combination. Manual is when something distracts the driver, and they take their hands off the steering wheel.[42] **Visual** *happens when the driver's attention is distracted by an object*. ***Cognitive*** *is when drivers are thinking about something else other than the road.* It

39 NoteCam Lite - GPS memo camera - Apps on Google Play
40 https://www.samsung.com/uk/support/mobile-devices/what-are-the-different-camera-modes-and-how-do-i-use-them/
41 https://www.chp.ca.gov/InformationManagementDivisionSite/Documents/GLOSSARY2016.pdf
42 The Epidemic of Distracted Driving | Robson Forensic

can include smoking at the wheel, eating, applying makeup, and texting[35] Some accidents may be caused by alcohol, drugs, or road rage. Figuring out the root cause of any accident is important. Eventually you need to recommend corrective action to avoid future incidents. If an accident happens, the CSM should:

- Make the scene safe
- Follow organizational police for accidents
- Provide medical attention
- Take photographs and video (including vehicle plates)
- Ask the employee what happened
- Look for witnesses
- Look for vehicle installed video or potential surrounding businesses CCTV
- Located reference points
- Take measurements
- Speed calculations or traffic control device evaluation (include photos and measurement
- 11. Look for skid marks, gouges and evaluate debris field
- Paint transfer
- Environmental factors (weather, lighting
- Document information

GPS can be administered to any organization vehicle to track location, vehicle speed, slowing, acceleration, breaking, and turning. This may help, mitigate, or even disprove how the accident appears and may push risk away from your driver and organization. GPS can help with internal investigations into damage claims or accidents.[43] Understanding how to retrieve the data should be done by the CSM. Data is removed using a computer or phone and software. NoteCam may be a great option for accidents to document latitude, longitude, altitude, accuracy, time, and allows for comments and notes.

Mathematical Formulas - Measurements

***Skid Marks**: $S=\sqrt{30 \cdot d \cdot f}$*

Skid marks *are produced when a tire slides across a paved surface, leaving dark rubber particles on the pavement*.[44] Skid marks are commonly found on surfaces such as asphalt, dirt, concrete, and snow following a vehicle collision or sudden stop. These marks can provide investigators with critical information about the vehicle's speed and braking behavior prior to the incident. By applying standardized skid mark formulas**,** the vehicle's speed at the time of braking can often be estimated. This information may help reconstruct the accident, assess driver behavior, or evaluate liability**,** and can sometimes mitigate perceived risk or clarify the sequence of events**.** For convenience, a variety of speed calculators and online tools are available to assist investigators in performing these calculations accurately.

Some scenes may have blood evidence. It may be important to determine the angle of impact to verify statements or to develop facts to build your case. The investigator can use the following formula to determine angle of impact/inverse sin:

Angle of Blood: $\text{Sin}^{-1} = \frac{\text{Width}}{\text{Length}}$

Evidence Collection, Packaging, and Documentation

The collection, packaging, and documentation of evidence are critical to preserving the integrity of a crime scene. Proper handling ensures that evidence remains uncontaminated, unaltered, and legally admissible in court Every item of evidence, whether physical, digital, or trace, requires careful attention to prevent degradation or loss.[45]

Agency-Specific Procedures

Evidence collection procedures can vary depending on the organization. Security teams, loss prevention units, and law enforcement agencies may each follow different protocols. Investigators must adhere to established guidelines when they exist. If

[43] https://www.verizonconnect.com/v/fleet/gpsfleet/fleet-management-software-rlsa/?msclkid=41601edd6c011e14fe4b7ddbbeaf053d&utm_source=bing&utm_medium=cpc&utm_campaign=US%2BENG%2BSPART%2BGPS%2BExact&utm_term=gps%20tracker%20system&utm_content=GPS%20Tracker_Exact

[44] https://courseware.cutm.ac.in/wp-content/uploads/2020/06/Skid-Marks-and-its-types-.pdf

[45] https://nij.ojp.gov/library/publications/evidence-collection

no procedures are in place, it is the responsibility of the investigator or agency to develop standardized protocols that ensure consistency and reliability in evidence handling.[46]

Collected evidence must be stored in a secure location to prevent tampering, contamination, or loss. Items should be labeled clearly, sealed properly, and logged in an evidence management system. Proper storage is essential to maintain a reliable chain of custody.

Chain of Custody

The chain of custody documents every person who has handled a piece of evidence, from the crime scene to storage, analysis, and presentation in court.[47] Maintaining this record ensures accountability and preserves the legal integrity of the evidence. A typical chain-of-custody log includes:

- Item identification (description, barcode, or evidence number)
- Collector information (name, agency, badge number)
- Date and time of collection
- Transfer details (who received the evidence, date/time of transfer)
- Condition notes (any packaging changes or anomalies)

Proper chain-of-custody procedures prevent questions about evidence tampering and demonstrate that the evidence presented in court is the same as that collected at the scene (Louisiana State Police Crime Laboratory Forensic Services Guide, 2025)

Documentation Standards

Every piece of evidence should be accompanied by detailed documentation, including who collected it, the date and time, the location, and the conditions under which it was gathered. Supporting materials such as photographs, sketches, and written notes help establish the scene's integrity and provide context for forensic analysis.[48]

Tools and Techniques for Evidence Handling

Investigators should use appropriate collection tools for each type of evidence. Gloves, tweezers, and evidence bags help prevent contamination of physical items. Trace evidence, such as fibers or hair, should be collected in small containers or envelopes. Digital evidence, such as computers or mobile devices, should be handled with care to preserve metadata, often using Faraday bags or write-blockers. All items should be packaged in tamper-evident containers and labeled with identifying informati

Maintaining Scene Integrity

Maintaining scene integrity is paramount. Every step of collection and packaging should be methodical, minimizing contamination or alteration. Investigators should plan the sequence of collection, prioritize perishable evidence, and ensure that every item is accounted for from the scene to the storage facility. A disciplined approach strengthens the evidentiary value and ensures credibility in judicial proceedings. Every person who collects evidence must explain what location and facility they have stored it at.[49]

The recorder and evidence collector should be familiar with organizational policy for *collection and packaging* evidence. If they are not familiar or lack expertise, then a specialized person should be used.

Here is a list of the different types of evidence categories, however, it is not inclusive:

- Accelerants and ignitable liquids
- Bodily fluids
- Documents
- Fingerprints
- Firearms
- Ammunition
- Foot and tire
- Electronic and digital
- Trace evidence impressions
- Clothing

[46] Gardner, R. Practical Crime Scene Processing and Investigation, 3rd Edition. CRC Press, 2020
[47] Siegel, J. Forensic Science: The Basics, 3rd Edition. CRC Press, 2018
[48] Fisher, B. A. J. Techniques of Crime Scene Investigation, 9th Edition. CRC Press, 2018
[49] https://post.ca.gov/portals/0/post_docs/basic_course_resources/workbooks/PC_832_VOL_3_V-3.0.pdf

- Tool marks
- Motor vehicles

Samples may be required at a scene. A **sample** *is physical material/evidence discovered at the incident/crime scene management and a sample is removed for independent testing.* Later the sample may be compared with samples from persons, tools, and physical locations. There are three types of samples: [50]

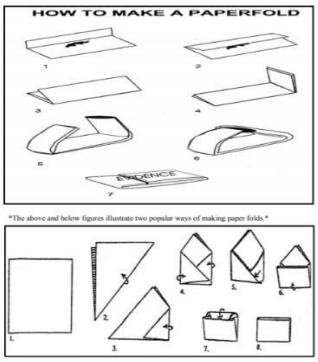
A **standard/reference** sample is material of a *verifiable/documented source* which, when compared with evidence of an unknown source, *shows an association or linkage between an offender, crime scene, and/or victim* (e.g., a carpet cutting taken from a location suspected as the point of transfer for comparison with the fibers recovered from the suspect's shoes, a sample of paint removed from a suspect's vehicle to be compared with paint found on a victim's vehicle following an accident, or a sample of the suspect's and/or victim's blood submitted for comparison with a bloodstained shirt recovered as evidence).

A **control/blank*** *sample is material* of a **known source/exemplar** that presumably was uncontaminated during the commission of the crime (e.g., a sample to be used in laboratory testing to ensure that the surface on which the sample is deposited does not interfere with testing. For example, when a bloodstain is collected from a carpet, a segment of unstained carpet must be collected for use as a blank or elimination sample. An **elimination sample** *is a known source taken from a person who had lawful access to the scene (e.g., fingerprints from occupants, tire tread impressions from police vehicles, footwear impressions from emergency medical personnel) to be used for comparison with evidence of the same type*.

- **Control sample number:** Each piece of evidence, including the control sample, must have a unique identification. A letter or number may be appended to the original evidence number to denote the **control sample**, e.g., *If the original evidence number was **#32**, the control sample could be **#32. or #32.1.***[50]

Paper Folds[51]

Evidence should always be placed in the appropriate container**,** sealed with tape, and signed by the recorder to maintain accountability (Louisiana State Police Crime Laboratory Forensic Services Guide, 2025, p21). Each container should be clearly labeled with essential information, including the case number, time of collection, address, and the specific location where the evidence was found**.** Investigators should always follow organizational policies if they differ from standard collection procedures. In certain circumstances, smaller envelopes or paper packets may be necessary to secure trace evidence such as paint chips, hairs, fibers, or other minute items. When using paper packets, ensure that the sample is folded and sealed so it cannot escape. These paper packets should then be placed in a larger outer evidence envelope**,** maintaining a secure and traceable chain of custody throughout handling and storage. Evidence collection is very broad depending on the item. Reference your organizational guidelines for collection methods.



[50] https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf
[51] http://www.lsp.org/pdf/Forensic_Lab_Services_Guide.pdf

Biological Evidence

When suspected biological evidence is identified, *collect a sample for biological analysis or collect the entire item*. When collecting the item, make a mark near the area where the sample was found (with a Sharpie or other marker). An arrow, line or circle should be made clearly indicating the location of the substance. Document the notes appropriately including:[52]

- Whether an alternate light source was used to locate the stain.
- Location of the stain.
- Size of the stain.
- Substance control sample location.

Paper is appropriate packaging for most types of evidence, especially biological. ***Paper is porous***—it allows water and vapor to escape. Clothing and other cloth items which are to be examined for DNA evidence should always be packaged in paper; moisture can lead to the destruction of DNA evidence.[53]

Trace Evidence [54]

Trace evidence is any material such as *hairs, fibers, glass, soil, paint, etc*., found at an incident/crime scene management on a person or object. Trace evidence may be used to associate an individual(s) with an incident/crime scene management or another individual. The investigators should have the following equipment available for use in the search and collection of trace evidence:

- Flashlight/hand lanterns
- Studio lights
- A portable alternate light source
- A more powerful, longer lasting light source.
- Vacuum – a portable vacuum equipped with filters and an attachment to prevent trace evidence from being drawn into the vacuum.

Physical Evidence[55]

Physical evidence refers to a wide range of physical objects (often minute in size). Examples of physical evidence include:

- Firearms and fired ammunition
- Fingerprints
- Toolmarks
- Tire tracks
- Footwear
- Trace Evidence such as hairs, fibers, glass, and paint
- Electronic
- Clothing
- Food
- Money

Physical evidence may be considered as corroborative evidence, which tends to confirm or support the theory of the crime, circumstantial evidence, which indirectly infers a particular conclusion regarding the crime.

Evidence Collection[56]

Plastic Storage has several obvious advantages: it has great strength for its weight and transparent plastic allows inspection of the enclosed contents. Plastic may decompose biological materials (e.g., blood stains) and destroy natural clothing materials (leather, wool, cotton) by molding and degrading.[57] For administrative cases, paper documents that are not going to be used for criminal charges can be stored in plastic.

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[52] https://www.crime-scene-investigator.net/crime-scene-procedures.html#4

[53] http://www.lsp.org/pdf/Forensic_Lab_Services_Guide.pdf

[54] http://www.forensicsciencesimplified.org/trace/

[55] https://projects.nfstc.org/firearms/module06/fir_m06_t04_01.ht

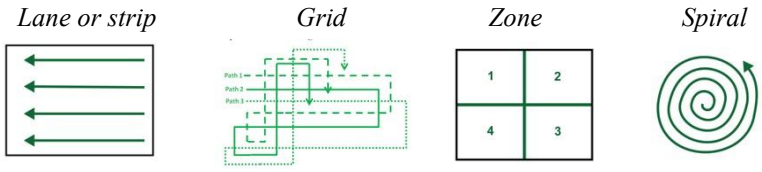
[56] https://lspcl.qualtraxcloud.com/ShowDocument.aspx?ID=31448

[57] https://lspcl.qualtraxcloud.com/ShowDocument.aspx?ID=3144

Metal Containers: New, clean, lined paint cans are ideal for storing non-biological samples that could evaporate and that contain volatile smell/fumes. The most common example is fire debris containing ignitable liquids.[58]
Glass Vials or Jars: These are useful for collection of liquid evidence, such as urine or blood.
Cardboard Boxes: Designed for packaging weapons, including knives, long guns, and handguns.
Paper Bags: Paper bags come in all different sizes and should be large enough to fit the content. Paper is good for all evidence and especially for biological evidence. Paper is porous and allows air exchange.
Always use PPE when collecting evidence because some items may be absorbed through your skin or inhaled.

Final Walk-Through

After completion of the crime scene, the team leader shall direct all members to conduct a final walk-through to look for additional evidence. This final check ensures that *materials or evidence are not inadvertently left at the scene and that no dangerous materials or conditions are left on scene*. The initial walk-through, searching, or the final walk-through can be done through various search methods such as:[58]



If any new evidence is identified, the team should *photograph the item in place, take measurements, collect, and package the items*. Prior to leaving, the team should talk to make sure they have completed their investigation and confirm what needs to be done prior to releasing or clearing the scene. **Documentation i**s the ability to clearly document the facts and activities of an investigation. It is important to document as you investigate. This not only reflects on your own professionalism, but also on the ability of the justice system to prosecute the criminal case or an internal investigation of an organization.[59] A report is required by everyone involved with the scene regardless of how small. *Each team member should write a report* based on their involvement, the in/out log, photographic log, and evidence log, rough sketch, copies of evidence collection sheets, and the final sketch. Any *specialized individuals, or first responders such as security, military, fire, or medical personnel should complete a report.* You may have to assign a team member to the collection of these reports with the understanding that some specialized reports take time. If a case is going to be presented to local law enforcement for potential charges, make sure it is complete.
Charged cases *are accepted for prosecution by the appropriate prosecuting authority, resulting in the filing of criminal charges in court or other disciplinary proceedings.* An **Uncharged Case** is an investigation *not yet reviewed for prosecution* by the appropriate prosecuting authority. Uncompleted investigations that have not been accepted for prosecution by the appropriate prosecuting authority may require more investigative work. completed investigations that have been declined for prosecution due to *insufficient evidence may need additional work as well.*[60]

Follow-Up

In investigations, it may become necessary for the lead investigator **to** conduct follow-up interviews with all personnel associated with the scene. The successful resolution of the case often depends on the investigator's ability to elicit accurate and complete information**.** It is critical to remain professional, ethical, and impartial throughout the follow-up process. Investigators should maintain neutrality**,** avoiding any behavior or language that could suggest bias or influence. When in-person interviews are not feasible, telephone interviews may be conducted, provided the interviewee has adequate privacy to discuss the circumstances openly and confidentially. Proper follow-up ensures that all relevant details are gathered, supporting a thorough and credible investigation.

58 https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf 8
59 https://post.ca.gov/portals/0/post_docs/basic_course_resources/workbooks/PC_832_VOL_3_V-3.0.pdf
60 https://doc.vermont.gov/sites/correct/files/documents/policy/correctional/409.08-crime-scene-preservation-evidence-collection-facility-redacted.pdf

Personal Protective Equipment[61], commonly referred to as *"PPE",* is *equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses.* It is your main source of protection. The following list is from the National Institute of Justice (2009). Essential items for first responding officers include *gloves, eye protection, booties, hair covering, overalls and a mask.* Specialists or organizations may have additional PPE and different PPE policies.

Slips, Fall, and Trips

Slips, falls, and trips occur all the time and millions of people are hospitalized each year. The costs to businesses can be thousands of dollars. Slips and falls can happen to employees and the public. The average amount of time off from work is eleven days and costs around thirty-four billion dollars annually.[62]

Companies are liable for slip and fall and should carry some type of insurance to protect against potential incidents. *Since most slips and falls are preventable*, using preventative measures is critical. Knowing what a slip and fall is may help you better understand how to prevent one. A **slip** *is when the flooring does not provide traction with a shoe, or a slippery substance is on the floor*. A **fall** *is when someone loses their center of balance.* This can be from falling off a ladder or stepping off a curb. The Occupational Safety and Health Administration (OSHA) [63] classifies them into two types:

- **Fall at the same level**—occurs on the same working surface
- **Fall to a lower level**—takes place below a person's working surface, common for those working at heights

A **trip** *is when your feet or legs come in contact with an object and the weight and momentum of your body makes you fall.*[64]

Organizations should train employees in injuries and liability involved with slips, falls, and trips. Having a policy in place and how to respond may lower or eliminate liability and risk. *When an employee recognizes a spilled item on the floor, the spill should be cleaned up immediately*. Signage should be placed out to warn employees and the public. Floors should be inspected routinely and checked for traction.

Responding to Workplace or On-Site Incidents

Should an incident occur, investigators must take immediate action while following organizational policies and procedures. Initial steps include rendering first aid, if necessary, and documenting the scene through photographs and video. Investigators should measure the area and record all relevant findings. For incidents involving a slip, examine the surface for slip marks, debris, or potential shoe transfers, and document any conditions that contributed to slipperiness. Capture close-up photos of the surface, note whether wet surface signs were posted, and record the type of footwear involved. In the case of a fall, measure the height from which the individual fell and document the exact dimensions of the object or surface involved. Take close-up photographs, note whether the individual was wearing a safety harness, and record the type of shoes. For trips, measure the height, width, or thickness of the object or hazard, identify what caused the trip, and document the shoes worn. Capture detailed photographs that show the measurements clearly. Finally, investigators should assess whether the individual may have been under the influence of alcohol or drugs, as this information could be relevant to understanding the circumstances of the incident.

Documenting Property Damage, Graffiti, and Messes

Property damage, graffiti, and messes or stains can result in significant repair costs for businesses. Depending on local law enforcement policies, a vandalism report may or may not be accepted, but it is critical to take immediate action to document the incident. Investigators or business personnel should *photograph and videotape* the damaged area, capturing both wide shots for overall context and close-ups for specific details. *Reviewing CCTV* footage from the affected property or neighboring businesses may provide additional evidence of the perpetrator. Any physical evidence, such as paint cans, tools, or other objects that could contain fingerprints, should be handled carefully and documented. Maintaining a dated log of all photos, videos, and evidence collected is essential, particularly when graffiti or vandalism may be part of a pattern across multiple locations.

Filing a police report, even in areas where law enforcement typically does not take vandalism cases, can create an official record that supports insurance claims and may assist in prosecution. Investigators should also contact local authorities to determine which

[61] https://nij.ojp.gov/topics/articles/equipment-needed-crime-scene-investigation#essentialFR
[62] 10 Facts & Statistics About Slip & Fall Accidents | Adam S. Kutner, Injury Attorneys (askadamskutner.com 10 Facts & Statistics About Slip & Fall Accidents | Adam S.
[63] Kutner, Injury Attorneys (askadamskutner.com)
[64] How to Prevent Slips, Trips, and Falls: A Guide |SafetyCulture

incidents they are likely to prosecute. Proper evidence handling, including logging, labeling, and storing physical items, ensures accountability and preserves the integrity of the investigation. By thoroughly documenting all aspects of the damage, validating, and authenticating any video evidence, and keeping a detailed record, businesses and investigators can strengthen their case, support restitution, and help identify potential repeat offenders.

Trespassing

When an individual enters or remains on a property after being asked to leave, it constitutes trespassing. Some organizations formally ban individuals from returning and issue a trespassing notice**.** It is recommended that businesses or property owners post the applicable local or state statute regarding trespassing to provide legal authority for enforcement. In some cases, trespassing or refusal to vacate may escalate into vandalism or other property damage**.** Investigators or security personnel should, whenever possible, identify the individual using a driver's license, state ID, or other forms of identification. All interactions should be documented, including the request to vacate, date and time, and a photograph of any "No Trespassing" signage. Reviewing CCTV footage can provide additional evidence, while adherence to **o**rganizational policies and local law enforcement requirements ensures proper handling of the incident. Thorough documentation and evidence collection are key to supporting legal action or prosecution if necessary.

Harassment Incidents

Harassment can occur ***internally*** within an organization or ***externally*** from outside sources. It is essential to be familiar with your organization's policies and procedures for investigating harassment. **Internal** harassment cases typically require interviews with employees and extensive documentation of all interactions and observations**. External** harassment may take the form of phone calls, mail, documents, in-person interactions, or must also be thoroughly documented. All paper evidence should be handled carefully to preserve potential fingerprints or DNA that could aid in the investigation. Maintaining detailed records and following established procedures ensures that harassment cases are addressed professionally, ethically, and in accordance with legal and organizational requirements.

Internal and External Theft

Internal theft *is when an employee takes property, commits fraud, and steals money.* Employee theft can be from stealing cash out of the register, timecard fraud, discounts, gift cards, and credit card fraud. Your company may have an asset protection team in place, but they may not be around at all times. Internal theft may be a violation of policy or could be a crime. **External theft** *is shoplifting, return fraud, and robbery.* External fraud involves non-employees. These cases usually are crimes and require more documentation.

If an employee or the public is caught while doing theft, follow organizational policy. Immediately take photographs of the items they were caught with or the disposed items located. Taking measurements may show factors such premeditated or how they went out of their way to hide their crime. Look for CCTV or video. Handle all items with gloves for potential processing fingerprints or DNA. Conduct interviews with witnesses and suspects. Document your findings and turn all records over to the asset team or the police.

CCTV – Close-Circuit Television

Closed-circuit television (CCTV) *can provide both real-time surveillance and after-the-fact information* ***for*** *investigations.* In some cases, the presence of CCTV may also act as a *deterrent to potential misconduct or criminal activity*. CCTV systems can be utilized in public spaces, private facilities, government buildings, and industrial sites. Some systems are compatible with mobile devices**,** allowing remote monitoring, while others require use at a centralized control location**.** CCTV is particularly valuable for monitoring large or high-traffic areas when manpower is limited. Both internal and external incidents can benefit from CCTV, which provides accurate photographic or video records of events. Investigators can use footage to observe the sequence of events, identify individuals involved, track entry and exit points, and assist in obtaining confessions**.** Proper training in system operation and adherence to organizational policies are essential to ensure effective and lawful use of CCTV in investigations.

Employee Misconduct

Employee misconduct *is a chosen behavior that involves violation of company policy or the law.* After investigating, your findings may or may not require disciplinary action. Was the employee's action a violation of company policy and requires an administrative review or did it break state law. Employee misconduct is very serious and may take immediate suspension,

termination, or a reprimand. Employee misconduct can be theft, damage of goods, breach of trade secrets, or the creation of false identifications.

Military Investigations

The military conducts all types of criminal investigations**,** including the control, documentation, and processing of crime scenes**.** A primary responsibility of military investigators is to prevent the loss or destruction of evidence**,** ensuring the integrity of the investigation. Investigators must strictly adhere to military policies and procedures**,** which may differ from those used by private organizations or state law enforcement agencies. Military investigations are conducted in alignment with Crime Scene Management (CSM) principles**,** ensuring that evidence is collected, preserved, and documented in a manner consistent with professional standards. Understanding these policies is essential for anyone involved in or supporting military investigative operations.

Entry Level Position - Law Enforcement

With a nationwide shortage of law enforcement personnel, some agencies are lowering the age of eligibility to 18**,** opening opportunities for young adults to join the profession. Demonstrating skills gained from a Crime Scene Management (CSM) program can make applicants more attractive to employers, showing that even at 18, they are capable and prepared for the responsibilities of the role. Employers seek candidates who work well in a team, think critically, and adapt to challenging situations. Highlighting experience with CSM emphasizes responsibility, problem-solving, and adaptability, as well as knowledge of investigative processes and effective communication within a team. These competencies can help young applicants stand out and demonstrate readiness for law enforcement careers.

Jail or Prison Investigation

With many jails and prisons hiring candidates at 18 years of age, having training in Incident or Crime Scene Management (CSM) can provide a significant advantage. Correctional institutions employ criminal investigators who handle a variety of cases, and having CSM-certificants on staff is valuable for ensuring that evidence is properly preserved and crime scenes are managed effectively. Investigations in jails and prisons fall into three categories: criminal, civil, and administrative. While county jails, state prisons, and private correctional facilities may differ in resources, policies, and procedures, they all function as confinement environments where maintaining scene integrity and procedural compliance is critical. Knowledge of CSM principles equips staff to respond competently to incidents, supporting both security and investigative objectives. Staff must follow specific steps to ensure the preservation of evidence for any investigation and the protection of legal rights of the accused.[65] If a scene cannot be secured initially, steps should be taken to prevent injury or loss of evidence

It may be necessary for a staff person to take custody of a weapon, so it does not get entered back into the inmate population.

Here is a basic response outline:

- Report the incident
- *Lock-down the facility and remove all inmates from the area*
- Secure the scene
- Request medical help
- Notify the supervisor
- Start in/out log
- *Photographs and video*
- *Conduct a cell-to-cell search for suspect(s)*
- Photograph suspects(s)
- Confiscate suspect clothing for evidentiary value
- Select CSM team
- Follow CSM organizational policy. Some jails are state or privately-run facilities and may have different policies in place.
- Initiate charges with the local jurisdiction

Because ***a jail or prison*** *can be placed on lockdown and conduct cell-to-cell searches*, inmates have limited opportunities to conceal or destroy evidence. While correctional policies may differ from traditional law enforcement agencies in how the Crime Scene Management (CSM) process is implemented, the fundamentals remain the same. Procedures such as photography, systematic searching, evidence collection, and detailed documentation must be followed to maintain integrity and ensure that all findings are legally admissible. In the correctional environment, strict adherence to these practices is especially important due to the confined setting and the potential for repeated incidents.

[65] https://doc.vermont.gov/sites/correct/files/documents/policy/correctional/409.08-crime-scene-preservation-evidence-collectionfacility-redacted.pdf

Stress[66]

A **traumatic *incident*** *is one that may involve exposure to catastrophic events such as severely injured children or adults, fatalities, dismembered bodies, or the sudden loss of colleagues.* These situations create unique stressors for investigators and first responders engaged in Incident/Crime Scene Management (CSM)**.** According to the National Institute for Occupational Safety and Health (NIOSH**)** and the **N**ational Institute of Mental Health (NIMH)**,** repeated exposure to trauma can result in psychological strain, compassion fatigue, or post-traumatic stress symptoms if not properly addressed. Organizations must provide resources such as peer support, counseling, critical incident stress debriefings, and employee assistance programs. It is essential that responders not only manage the scene effectively but also prioritize their own mental health and resilience**,** ensuring they remain capable of performing their duties in future investigations. Occupational Safety and Health (2013) recommends that all people involved in response activities help themselves and their coworkers and reduce the risk of experiencing stress associated with a traumatic incident by utilizing simple methods to recognize, monitor, and maintain health on-site and following such experiences, according to the Center for Disease Control.[67]

- **Take care of your body**–Try to eat healthy well-balanced meals, exercise regularly, and get plenty of sleep.
- **Connect with others**–Share your concerns and how you are feeling with a friend or family member. Maintain healthy relationships and build a strong support system.
- **Take breaks**–Make time to unwind and remind yourself that strong feelings will fade. Try taking deep breaths. Try to do activities you usually enjoy.
- **Stay informed**–When you feel that you are missing information, you may become more stressed or nervous. Watch, listen to, or read the news for updates from officials.
- **Avoid too much exposure to news**–Take breaks from watching, reading, or listening to news stories.
- **Seek help when needed**–If distress impacts activities of your daily life for several days or weeks, talk to a clergy member, counselor, or doctor, or contact the SAMHSA helpline at **1-800-985-5990**.**Types of Evidence**

Evidence

Types of evidence remain consistent across fields of investigation, whether in private security, retail environments, or formal criminal investigations. The classification does not change; only the circumstances surrounding its discovery may differ. **Physical evidence** *refers to tangible material items such as objects found in a retail store, transportation hub, residence, parking lot, or crime scene*. **Trace evidence**, *by contrast, is present in small but measurable amounts and may include fibers, strands of hair, or microscopic skin cells.* **Biological evidence** *stems from human or animal origin and is most often encountered at crime scenes. This category includes blood, saliva, perspiration, mucus, semen, vaginal fluid, and urine.* The collection and preservation of evidence are critical to the investigative process because evidence can prove that a crime has occurred, establish key elements of the offense, link a suspect to the scene or victim, and he[69]lp confirm or disprove witness testimony. Furthermore, properly collected evidence may identify a victim or suspect, exonerate the innocent, and provide detectives with leads to advance an investigation.

Testimonial and Eyewitness Evidence [68]

Testimonial evidence includes *oral or written* statements given to the individual investigating the incident and may include *testimony* in court.

Eyewitness evidence can be a useful tool in helping to analyze an *incident/crime scene management but* **is not** viewed to be highly *reliable.* In addition, eyewitness identifications (right or wrong) can have a big influence on the outcome of an *investigation* or trial. People are likely to view the same scene in different ways depending on their positions, line of sight, familiarity with the area, and other factors that can interfere with a person's ability to remember details.

According to The Innocence Project (2008), *"Eyewitness misidentification is the single greatest cause of wrongful convictions nationwide, playing a role in more than 75% of convictions overturned through DNA testing."* Still, the criminal justice system profoundly relies on eyewitness identification and testimony for investigating and prosecuting crimes (Wells & Olson, 2003). [69]

Age *may play a role in the accuracy of an eyewitness's statement or identification of a suspect*.

[66] https://www.cdc.gov/niosh/topics/traumaticincident/
[67] https://emergency.cdc.gov/coping/selfcare.asp

[68] *T. Trimpe 2006 http://sciencespot.net*
[69] https://web.archive.org/web/20160403170118/http://www.azafis.gov/skills.asp

Fingerprints[70]

Fingerprints remain one of the most reliable forms of forensic identification due to their uniqueness and permanence. There are three primary fingerprint patterns: arches, loops, and whorls. Arches *are the least common*, **loops** *contain one delta*, and **whorls** are *distinguished by two deltas*. Beyond these general patterns, investigators also examine unique ridge characteristics, or minutiae, which make individual identification possible. The **Automated Fingerprint Identification System (AFIS)** serves as a critical tool, allowing local, state, and national agencies to *search large databases for potential matches to prints recovered at crime scenes*. Investigators recognize three main categories of fingerprints: **patent prints**, *which are visible due to substances such as blood or ink*; **plastic prints***, which are impressions left in soft materials like wax or putty*; and **latent prints***, which are invisible to the naked eye and require development techniques*. Development methods may include fingerprint powders, chemical processes such as ninhydrin, or cyanoacrylate (superglue) fuming, all of which enhance the visibility of ridge detail for collection and comparison. In modern investigations, even smartphone cameras using macro settings can produce high-quality images of fingerprints, making technology an accessible tool for both internal and external investigative purposes.

Visible or Patent: Left by the *transfer of blood, paint, another fluid, or powder* onto a surface that is smooth enough to hold the print; evident to the naked eye.

Plastic: These prints are actual indentations left in some *soft material* such as clay, putty, or wax.

Latent: Sometimes called *hidden prints,* are caused by the *transfer of oils and other body secretions* onto a surface. They can be made visible by dusting with powders or making the fingerprints in some way more visible by using a chemical reaction. The Automated Fingerprint Identification System (**AFIS)** is a repository of latent fingerprints that remain unidentified in a computer-based system housed by the FBI.

Body Fluids[71]

Blood, semen, saliva, sweat, and urine can be analyzed to give investigators information about the crime as well as its victim or the suspect. Chemicals and ultraviolet light can be used at a crime scene to find body fluid evidence. Areas with potential evidence are swabbed, bagged, and collected in vials, which are airtight and have a low risk of cross contamination.

Examples:

- Vomit and urine can be used to test for alcohol, drugs, and poisons.
- Cigarette butts may contain dried saliva.
- Semen containing sperm is valuable for DNA analysis.
- Blood can provide DNA evidence and blood spatter can provide clues about the crime.

Blood samples – Can be analyzed to determine blood type and DNA, which can be matched to possible suspects.

Blood droplets – Can be analyzed to give clues to the location of a crime, movement of a victim, and type of weapon.

Blood spatter – Can be analyzed to determine patterns that give investigators clues to how a crime might have happened.

Luminol -- *This chemical is used by crime scene investigators to locate traces of blood*, even if it has been cleaned or removed. Investigators spray a luminol solution throughout the area under investigation and look for reactions with the iron present in blood, which causes a blue luminescence.

DNA

- Investigators can extract DNA from almost any tissue, including hair, fingernails, bones, teeth, and body fluids. DNA is used to create a profile that can be compared to profiles from suspects or victims.
- CODIS (Combined DNA Index System) is a database maintained by the FBI that is used to find matches to unknown DNA samples from a crime scene.

70 https://web.archive.org/web/20160403170118/http://www.azafis.gov/skills.asp
71 Source: http://www.virtualsciencefair.org/2004/fren4j0/public_html/trace_evidence.htm

In/Out Log

Case Number: _____ Officer/Technician: _____

Name	Date	Time In	Tine Out	Reason

Photo Log **Case Number: _____ Officer/Technician: _____**

Weather	**Victim/Witness**	**Day** **Night** **Light Source**	**Suspect**	**360°** **180°**	**Close-ups** **Video**

Picture #'s	Description	Time
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Evidence Sheet - Case Number: _____ Officer/Technician: _____

Evidence Number	Description	Location
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Report / Case # _____ Date: _____/_____/_____ Time: _____

Synopsis_____
_____
_____

Narrative_____

Officer Name: _____

Resources

US Department of Justice A Guide for Law Enforcement - Crime Scene. Investigationhttps://www.ncjrs.gov/pdffiles1/nij/178280.pdf
National Institute of Justice: 2013 Crime Scene Investigation Guide for Law Enforcement.
https://nij.ojp.gov/topics/articles/crimescene-investigation-guides-law-enforcement
Federal Bureau of Investigation: The Handbook of Forensic Services
https://www.fbi.gov/file-repository/handbook-of-forensic-services-pdf.pdf.
CDC Criminal Investigation for Public Health Professionals
https://www.cdc.gov/phlp/docs/forensic_epidemiology/presentations/ForEpi_LEslides.pdf
CDC / NIOSH Personal Protective Equipment
https://www.cdc.gov/niosh/topics/emres/responders.html
Crime Scene Investigator Network https://www.crime-scene-investigator.net
http://www.lsp.org/pdf/Forensic_Lab_Services_Guide.pdf
https://www.sirchie.com/media/resourcecenter/item/t/b/tb100_tb03-175eng-rev6e.pdf
http://sciencespot.net 2006
http://www3.sc.maricopa.edu/ajs/crime_scene_technician.htm
http://sciencespot.net 2010
https://www.fss.org.uk/forensic-archaeology.html
Forensic Science Program, University of New Haven, 300 Boston Post Road, West Haven, CT, USA. plantdnatracker@yahoo.com
http://sciencespot.net/ 2009 https://www.cdc.gov/niosh/topics/traumaticincident/ https://emergency.cdc.gov/coping/selfcare.asp
https://www.nist.gov/system/files/documents/forensics/Crime-Scene-Investigation.pdf
http://mrsklattscience.weebly.com/uploads/8/7/7/1/8771535/crime-scene-diagramming-back-basics.pdf
https://nij.ojp.gov/topics/articles/equipment-needed-crime-scene-investigation#essentialFRO
https://projects.nfstc.org/firearms/module06/fir_m06_t04_01.htm
http://www.forensicsciencesimplified.org/trace/
Tacoma Police Department - Forensic Services Policy and Procedure Manual – May 11, 2004 https://archives.fbi.gov/archives/about-us/lab/forensic-science-communications/fsc/april2000/twgcsi.pdf https://forensicyard.com/forensic-entomology/#:~:text=Medicolegal%20Entomology%20deals%20with%20the%20use%20of%20insects,investigation%20when%20the%20death%20has%20not%2 0been%20witnessed.
https://www.crime-scene-investigator.net/crime-scene-contaminationissues.html#:~:text=Environmental%20conditions%20may%20also%20play,evidence%20at%20a%20crime%20scene.
https://www.smartdraw.com/crime-scene/
http://www.virtualsciencefair.org/2004/fren4j0/public_html/trace_evidence.htm
http://www.smithsonianchannel.com/videos/top-techniques-of-a-trace-evidence-expert/20749
https://web.archive.org/web/20160403170118/http://www.azafis.gov/skills.asp
https://archives.fbi.gov/archives/about-us/lab/forensic-science-communications/fsc/april2000/twgcsi.pdf
https://www.crimemuseum.org/crime-library/forensic-investigation/edmond-locard/
https://post.ca.gov/portals/0/post_docs/basic_course_resources/workbooks/PC_832_VOL_3_V-3.0.pdf
https://doc.vermont.gov/sites/correct/files/documents/policy/correctional/409.08-crime-scene-preservation-evidence-collectionfacility-redacted.pdf
Crime Scene Diagramming (desksgt.com)
https://turbofuture.com/cell-phones/How-to-Use-Your-iPhone-for-Macro-Photography
How to Take Panorama Photos With Your Phone | PicMonkey
https://www.cdc.gov/niosh/docs/2002-107/
https://www.nimh.nih.gov/health/topics/coping-with-traumatic-events
Fisher & Fisher, 2012; Houck & Siegel, 2018; NIJ, 2013
https://lspcl.qualtraxcloud.com/ShowDocument.aspx?ID=25766

Case #:	Date:	Time	Location-Address	Your Name:	Crime
Weather	Scale ¼" = 1' ☐ Not to Scale ☐	Day ☐ Night ☐	Suspect	School	North

Evidence Items and Measurements

Item #	Description	RP 1		RP2		RP3		RP4	

Photos: Yes □ No □ **Video:** Yes □ No □ **Measurements: Tape Measure** Yes □ No □ **iPhone** □ **Android:** □ **Laser** Yes □ No □ **Drone:** Yes □ No □ **CCTV:** Yes □ No □ **I/S** □ **O/S** □ **Measurements**

Notes:_____

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_____

Case #:	Date:	Time	Location-Address	Your Name:	Crime
Weather	Scale ¼" = 1' ☐ Not to Scale ☐	Day ☐ Night ☐	Suspect	School	North

Evidence Items and Measurements

Item #	Description	RP 1		RP2		RP3		RP4	

Photos: Yes ☐ No ☐ **Video:** Yes ☐ No ☐ **Measurements: Tape Measure** Yes ☐ No ☐ **iPhone** ☐
Android: ☐ **Laser** Yes ☐ No ☐ **Drone:** Yes ☐ No ☐ **CCTV:** Yes ☐ No ☐ **I/S** ☐ **O/S** ☐ **Measurements**

Notes:_____
_____
_____
_____

Case #:	Date:	Time	Location-Address	Your Name:	Crime
Weather	Scale ¼" = 1' ☐ Not to Scale ☐	Day ☐ Night ☐	Suspect	School	North

Evidence Items and Measurements

Item #	Description	RP 1		RP2		RP3		RP4	

Photos: Yes □ No □ **Video:** Yes □ No □ **Measurements: Tape Measure** Yes □ No □ **iPhone** □ **Android:** □ **Laser** Yes □ No □ **Drone:** Yes □ No □ **CCTV:** Yes □ No □ **I/S** □ **O/S** □ **Measurements**

Notes:_____

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How to Use This Glossary

This glossary contains essential terms for crime scene investigation (CSI), forensic science, and evidence management. It is designed to give readers a strong foundation in both practical investigative methods and scientific analysis, including laboratory procedures and specialized disciplines such as toxicology, entomology, trace chemistry, and DNA analysis. While the glossary is comprehensive, it is not a one-size-fits-all resource. The terms and definitions may be applied differently depending on the setting, whether in law enforcement, private security, retail loss prevention, corrections, or other business and industry environments. Some terms relate directly to crime scene protocols, while others focus on scientific principles, documentation, or investigative roles. Readers should use this glossary as a reference guide to better understand reports, procedures, and instructional material, and to strengthen communication when discussing evidence, investigative processes, or safety protocols. Mastery of these terms will help learners accurately describe and process incidents while maintaining professional standards and organizational compliance.

Master Forensic Science & Crime Scene Glossary

ABFO Scale: A standardized forensic measurement tool developed by the American Board of Forensic Odontology, used in photographs to provide scale and accuracy for evidence comparison.
Accomplice: A person associated with someone suspected of committing a crime.
Alibi: A statement or proof of where a suspect was at the time a crime occurred.
Angle of Blood: The angle at which a blood droplet strikes a surface, used to determine the origin of bloodstains in crime scene reconstruction.
Anthropologist (Forensic): A specialist who analyzes skeletal remains to determine the identity of a victim as well as life history, cause of death, or other clues about a crime.
Aperture: The camera lens opening that controls the amount of light reaching the sensor, affecting exposure and depth of field.
Archaeologist (Forensic): A specialist who applies archaeological methods in criminal investigations to identify evidence and reconstruct crime scenes.
Ballistics (Firearms) – The study of bullets and ammunition through the comparison of fired bullets, cartridges, firearms, and gunpowder patterns on people and objects.
Biological Fluids – Fluids of human or animal origin commonly encountered at crime scenes (e.g., blood, mucus, perspiration, saliva, semen, vaginal fluid, urine).
Biology/DNA – Analysis of body fluids and dried stains such as blood, semen, and saliva for identification through DNA profiling.
Blood Droplets – Individual drops of blood that provide clues about the location of a crime, movement of a victim, and type of weapon used.
Blood Samples – Physical evidence collected from a scene that can be analyzed to determine blood type and DNA. DNA from blood samples can help identify possible suspects or victims.
Blood Spatter – Patterns created by blood at a crime scene, analyzed to help investigators reconstruct the sequence of events and understand how a crime occurred.
Botanist (Forensic) – A scientist who uses plant evidence to aid investigations, helping determine manner of death, burial timelines, or locations of crime scenes.
Camera Night Mode: A camera feature that allows evidence documentation in low-light conditions without sacrificing clarity.
CBRNE: Acronym for Chemical, Biological, Radiological, Nuclear, and Explosive hazards that may be encountered in crime scene or terrorism investigations.
Chain of Custody: The documented process that records the seizure, custody, transfer, analysis, and disposition of physical or electronic evidence.
Charged Case: An investigation accepted for prosecution by the appropriate authority, resulting in the filing of criminal charges.
CCTV (Closed-Circuit Television): Security camera footage often used as digital evidence in criminal investigations.
Cross-Contamination: The unwanted transfer of material between two or more sources of physical evidence.
Crime Scene: Any location where evidence of a crime may be found.
Crime Scene Tape and Perimeter: Physical barriers established to secure a crime scene, control access, and protect evidence.
Digital Evidence: Data or information stored or transmitted in binary form that may be relied upon in court (e.g., files, emails, CCTV).
Documentation: Detailed record of the scene, evidence recovered, and actions taken, created through notes, photos, sketches, and
Employee Misconduct: Any violation of workplace rules or criminal activity committed by employees that may require investigation.
Environmental Factors: External conditions such as weather, temperature, and lighting that can affect evidence preservation.
Entomologist (Forensic): Specialist who studies insects at crime scenes to estimate time of death (Postmortem Interval).
Evidence Collection: The systematic recovery of physical evidence following established procedures to prevent loss or contamination.
Evidence Identification Numbers: Labels or markers placed near evidence during documentation to ensure proper cataloging.
Evidence Legend: A key or reference list that explains symbols or numbers used in a crime scene sketch.
Exemplar: A sample of known origin (such as handwriting, fingerprints, or tire impressions) used for comparison with questioned evidence.
Exposure: In photography, the amount of light captured by the camera sensor, controlled by aperture, shutter speed, and ISO.
Final Walkthrough: The last inspection of a crime scene by investigators to ensure all evidence is documented and collected before release.

Follow-Up: Additional investigative work conducted after the initial scene processing, often involving interviews, lab testing, or report reviews.
Footprints: Impressions left by shoes or bare feet that may serve as class or individual evidence.
Golden Hour (CSI): The critical time immediately after a crime when evidence is most likely to be fresh and uncontaminated.
Graffiti: Illegal markings, writings, or drawings on property, often considered criminal mischief or vandalism.
Harassment Incidents (Internal and External): Acts of unwanted behavior, threats, or intimidation occurring within or outside the workplace that may require documentation or investigation.
In/Out Log: A written record of all individuals entering or exiting a secured crime scene.
Initial Walkthrough: The first systematic survey of a crime scene, conducted to identify potential evidence and establish a processing plan.
Internal and External Theft: Crimes involving stolen property either committed by employees (internal) or outsiders (external).
Latent Prints: Hidden fingerprints or impressions from sources like shoes, tires, or lips, made visible through powders or chemical processing.
Locard Exchange Principle: The forensic theory that every contact leaves a trace.
Luminol – Luminol is a chemical reagent used to detect traces of blood, even if cleaned or removed. When sprayed, it reacts with the iron in hemoglobin, producing a blue luminescence that reveals hidden blood evidence.
Microscopy: The microscopic identification and comparison of evidence such as hair, fibers, soil, or building materials.
Packaging (Evidence): Procedures for wrapping, sealing, and labeling evidence to preserve integrity and prevent contamination.
Paint Transfer: Evidence left when paint is exchanged between two objects (e.g., in vehicle collisions).
Panoramic (Photography): Wide-field photographic technique useful for documenting large crime scenes.
Paper Bags for Biological Evidence: Breathable packaging method used to store wet or biological evidence to prevent mold growth.
Personal Protective Equipment (PPE): Safety gear such as gloves, masks, and suits used to protect investigators and prevent contamination.
Perspective Sketch: A sketch that shows a three-dimensional view of the crime scene.
Primary and Secondary Crime Scene: The main location where a crime occurred (primary) and additional related locations (secondary).
Projection Sketch: A top-down view of the crime scene, often used for mapping evidence.
Property Damage: Destruction or vandalism of property that may require documentation and investigation.
Pythagorean Theorem (CSI Use): $A^2 + B^2 = C^2$, applied to determine distances or trajectories in crime scene measurements.
Questioned Documents: The analysis of handwriting, inks, papers, or other materials to determine authenticity or authorship.
Recorder: The crime scene team member responsible for detailed notes, logs, and evidence tracking.
Reference Points (Crime Scene Mapping): Fixed, permanent features used to measure and map evidence locations.
Rough Sketch: A hand-drawn representation of a crime scene with accurate measurements but not to scale.
Shoplifting: Theft of merchandise from a retail establishment.
Shutter Speed: The length of time a camera's shutter remains open to expose the sensor to light.
Skid Marks: Tire marks left during sudden braking, often used in traffic accident reconstruction.
Slips, Trips, and Falls: Common workplace or public incidents that may require documentation for liability or safety.
Speed Calculations (Accident Reconstruction): Mathematical determination of vehicle speed based on skid marks, stopping distance, and physics principles.
Sketcher: Crime scene team member responsible for creating diagrams of the scene.
Suspect: A person thought to be capable of committing a crime.
Team Leader: Oversees the entire crime scene operation, ensures proper protocols are followed, and coordinates with outside agencies.
Testimonial Evidence: Statements made by witnesses or experts under oath.
Toolmarks: Impressions or scratches left by tools on objects or victims.
Toxicology: The study and testing of body fluids and tissues for drugs, alcohol, or poisons.
Trace Chemistry: The identification and comparison of materials such as paint, glass, or explosive residues.
Traumatic Incident: A sudden or violent event causing physical injury, psychological harm, or death.
Trespassing: Unauthorized entry onto property.
Uncharged Case: An investigation not yet accepted for prosecution, declined due to insufficient evidence, or pending review.

Comprehensive Forensic Glossaries & Guides

Forensic Science Glossary by John C. Brenner
This book offers over 1,300 entries covering key concepts within forensic science, including toxicology, documents, drug chemistry, criminalistics, ballistics, and DNA analysis.
Glossary for Crime Scene Investigation: Guides for Law Enforcement (National Institute of Justice)
An archived glossary that defines terms used in the NIJ's Crime Scene Investigation guides, such as "ABFO scales" and "alternate light source."
OSAC Lexicon
A continually updated compendium of forensic science terms and definitions, created to bring consistency and understanding to the way terms are used across various forensic disciplines.
Crime Scene Investigation: A Guide for Law Enforcement (National Institute of Justice)
A comprehensive guide that includes a glossary of terms related to crime scene investigation, providing definitions and context for various terms used in the field