Instructor Resource Guide

Crime Scene Investigations

Course ID# 2106

Continuing Education Requirement

Revised July 2024

ABSTRACT

This course is designed to satisfy requirements for Intermediate Peace Officer Proficiency Certification under Commission rules 221.1 and 221.3. This course will educate law enforcement officers on how to conduct a crime scene investigation. This guide covers the legal aspects of a crime scene search, collection of various types of evidence, and specific crime scene searches.

Instructor Resource Guide:

This is an Instructor Resource Guide (IRG), not a lesson plan. The purpose of the IRG is to outline the minimum state requirements of what must be taught for a course to be considered compliant and receive TCOLE credit. The learning objectives provided in this IRG are the minimum state requirements for the training and must not be changed or altered.

- A qualified instructor **shall** develop the IRG into a lesson plan that meets their organization and student needs and must be kept in a training file for auditing purposes.

Please note: It is the responsibility of the Academy and/or Contractual Training Provider to ensure the IRG is developed into a complete lesson plan based on the requirements outlined in the IRG for a particular topic.

Lesson Plan:

Each organization is charged with creating their own lesson plan for how the organization will disseminate the information in the IRG.

- The IRG is designed to assist the instructor/subject matter expert in developing comprehensive lesson plans. The use of current statistics, best practice models, and scenario-based training should also be included in the lesson plan development. Instructors are encouraged to add additional activities.
- The institutions and instructors will determine how much time is spent on each topic/module, how many/what kind of examples or exercises are used during their presentation, and how in-depth they review each topic in the course they present.
- Any activity that is **suggested** is just that, an example or suggestion, and is not mandated for inclusion.
- Anything that is **required** must be included in the instructor's lesson plan.

Note to Trainers:

It is the responsibility of the Academy and/or Training Coordinator to ensure this curriculum and its materials are kept up to date. Refer to curriculum and legal resources for changes in subject matter or laws relating to this topic as well as the Texas Commission on Law Enforcement website at www.tcole.texas.gov for edits due to course review. Training providers must keep a complete training file on all courses reported for TCOLE credit.

Student Prerequisites:

- None

Instructor Prerequisites:

An instructor must be a subject matter expert in the topic and must have documented knowledge/training/education and provide an instructor's biography that documents subject matter expertise. It is the responsibility of the training academy/training coordinator to select qualified instructors. A TCOLE instructor certification does not certify someone to teach any topic.

- If a documented subject matter expert does not hold a TCOLE instructor certification, the instructor must be approved in writing by the department's training coordinator or chief administrative officer and kept in the training file for the course.

Facility Requirements:

- This class must be held in-person in a standard classroom environment.

Length of Course:

It is the training coordinator's responsibility to ensure the minimum hours are being met. Students are required to attend all classroom hours as listed in this instructor resource guide, there is no 10% attendance rule. TCOLE Rule 218.1 (C)(4) states that failure to meet the minimum course length may be grounds for denial of training. This course shall be taught the minimum hours that are listed in this guide and the student shall attend the entire class to receive credit.

- 40 hours, minimum.

Assessment:

- Training providers are responsible for creating student assessments and documenting the mastery of all objectives in this course using various testing assessment opportunities.
    - Assessment opportunities include oral or written testing, interaction with instructor and students, case study and scenario, and other means of testing student's application of the skills taught as the instructor or department deems appropriate.
- The minimum passing score shall be 70%.

Unit 1 Legal Aspects of a Crime Scene Search

Unit Goal: Legal aspects of a crime scene search.

1.1 Explain certain objectives and legal obligations that must be followed during a crime scene search.

A. Objectives of a crime scene search

i. A crime scene search is a planned and coordinated legal search of a crime scene to locate physical evidence or witnesses to the crime under investigation.

ii. The objectives in conducting a search of a crime scene are to aid in the following and can:

1. Help establish that a crime has been committed (i.e., identify the type of crime and establish the elements of the crime.)
2. Be used to place the suspect at the scene (i.e., shoe impressions may match those of a known suspect in the community.)
3. Be used to eliminate persons, such as through DNA testing.
4. Cause suspects confronted with physical evidence to confess the crime.
5. Help support witness's testimony with physical evidence.
6. Help establish when/where/how/why the crime was committed.

B. Follow the law

i. Local, State, and Federal laws must be abided by to ensure admissibility of evidence in a court of law.

ii. This can be done by keeping up to date with current laws and department policy, as well as communicating with legal authorities.

iii. Determine the need of a search warrant.

iv. If the crime scene does not fall under your agency's jurisdiction, identify the jurisdiction, and contact the appropriate agency.

1.2 Identify related constitutional and criminal laws related to a crime scene search.

A. Due process, U.S. Constitution, and the Bill of Rights:

i. 14th Amendment – three classes of rights: 1) privileges and immunities of citizens of the U.S., 2) due process of law, and 3) equal protection under the law.

ii. 4th Amendment – unreasonable searches and seizure clause; warrant clause

iii. 5th Amendment – self-incrimination clause

iv. 6th Amendment – right to confrontation clause; right to counsel clause

B. Legal issues for searches

i. Probable cause

ii. Exclusionary rule

iii. Fruit of the Poisonous Tree Doctrine (due process)

1. Silverthorne Lumber Co. v. United States, 251 US 385 (1918)

iv. Search incident to lawful arrest
   1. Chimel v. California, 395 U.S. 752 (1969)
   2. Maryland v. Buie, 494 U.S. 325 (1990)
   3. United States v. Sokolow, 490 U.S. 1, 7 (1989)

v. Good faith exception
   1. United States v. Leon, 468 U.S. 897 (1984)
   2. Massachusetts v. Sheppard, 468 U.S. 981 (1984)
   3. Illinois v. Rodriguez, 497 U.S. 177 (1990)

vi. Inevitable discovery doctrine
   1. Nix v. William, 467 U.S. 431 (1984)

vii. Computer errors exception
   1. Arizona v. Evans, 514 U.S. 1 (1995)

1.3 Define a search warrant.

A. Code of Criminal Procedure, Sec. 18.01: Search Warrant

B. Specific types:
   i. Anticipatory – based on an affidavit showing probable cause that evidence of a certain crime will be located at a specific time and place, at a future date.
   ii. Blanket – authorizes officials to search more than one area; serves as an unconstitutional warrant authorizing the seizure of everything found at a given location, without specifying which items may be seized.
   iii. No-knock – authorizes officials to enter premises without knocking and announcing their presence and purpose before entry (a prior announcement would lead to a destruction of items searched for or would endanger the safety of the police or another person).

1.4 Describe certain requirements of a search warrant.

A. In order for a warrant to be legal, it must meet constitutional guidelines, legal requirements, the authorization of a magistrate, and contain certain information.

B. Once a warrant is authorized, it must be executed promptly; other items of contraband/evidence should not be sought, unless they are specified in the warrant.
   i. Items seized, other than those specified in the warrant, are not considered "within the scope of the search" and will probably be excluded from the trial, as evidence obtained illegally.

C. The search process consists of three stages:
   i. The affidavit
   ii. Execution of the search warrant.
   iii. The search warrant return.

1.5 Explain advantages of using a search warrant.

A. Has proved to be one of the most valuable tools in criminal investigation.

B. Some of its many uses include:

   i. To recover stolen property; seize drugs or other contraband

   ii. To seize any other specific type of property used in the commission of a crime.

C. Evidence seized through the use of a search warrant may be more readily accepted by courts than if seized without a warrant or incident to arrest.

D. An officer may be protected from civil liability.

E. May shift the legal burden to the defendant to show that the evidence was seized illegally.

1.6 Discuss search warrants according to Texas statutes.

A. Code of Criminal Procedure, Sec. 18.02: Grounds for Issuance

B. Code of Criminal Procedure, Sec. 18.021: Issuance of Search Warrant to Photograph Injured Child

C. Code of Criminal Procedure, Sec. 18.0215: Access to Cellular Telephone or Other Wireless Communications Device.

D. Code of Criminal Procedure, Sec. 18.03: Search Warrant May Order Arrest

E. Code of Criminal Procedure, Sec. 18.04: Contents of Warrant

F. Code of Criminal Procedure, Sec. 18.06: Execution of Warrants

G. Code of Criminal Procedure, Sec. 18.07: Days Allowed for Warrant to Run

H. Code of Criminal Procedure, Sec. 18.08: Power of Officer Executing Warrant

I. Code of Criminal Procedure, Sec. 18.09: Shall Seize Accused and Property

J. Code of Criminal Procedure, Sec. 18.10: How Return Made

K. Code of Criminal Procedure, Sec. 18.11: Custody of Property Found

L. Code of Criminal Procedure, Sec. 18.17: Disposition of Abandoned or Unclaimed Property

M. Code of Criminal Procedure, Sec. 18.18: Disposition of Gambling Paraphernalia, Prohibited Weapons, Criminal Instrument, and Other Contraband

N. Code of Criminal Procedure, Sec. 18.181: Disposition of Explosive Weapons and Chemical Dispensing Devices

O. Code of Criminal Procedure, Sec. 18.183: Deposit of Money Pending Disposition

P. Code of Criminal Procedure, Sec. 18.19: Disposition of Seized Weapons

Q. Code of Criminal Procedure, Sec. 18.22: Testing Certain Defendants or Confined Persons for Communicable Diseases

R. Code of Criminal Procedure, Sec. 18.24: Body Cavity Search During Traffic Stop

S. Code of Criminal Procedure, Sec. 18A.001: Interception and Use of Wires, Oral, or Electronic Communications – Definitions

1.7 Explain exceptions of a warrantless search.

A. 4th Amendment – Unreasonable searches and seizure clause. "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated." Warrants clause: "No warrants shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched and the persons or things to be seized."

B. Regardless of how much probable cause an officer may have, if they conduct a search without a search warrant, there can be a legal presumption that the search is unconstitutional, so be very cautious of electing to search without a warrant.

C. Exceptions of warrantless searches authorized under law.

i. Consent

1. Florida v. Royer, 460 U.S. 491 (1983)
2. Bumper v. North Carolina, 391 U.S. 543 (1968)
3. Schneckloth v. Bustamonte, 412 U.S. 218, 93 S. Ct. 2041, 36 L. Ed. 2d. 854 (1973)
4. Florida v. Jimeno, 500 U.S. 248 (1991)

ii. Emergency (exigent circumstances)

1. Danger
2. Threat of the suspect escaping
3. Threat of the removal or destruction of evidence (e.g. flushing it down the toilet)
4. Relevant case law:
   a. Ker v. California, 374 U.S. 23, 42 (1963)
   b. Cupp v. Murphy, 412 U.S. 291 (1973)
   c. Warden v. Hayden, 387 U.S. 294, 303 (1967)
   d. Mincey v. Arizona, 437 U.S. 385 (1978)
   e. Wilson v. Arkansas, 514 U.S. 927 (1995)

iii. Incident to lawful arrest

1. New York v. Belton, 453 U.S. 454 (1981)

iv. Stop-and-frisk

1. To investigate suspicions circumstance
2. To make identification of a subject
3. Relevant case law:
   a. Terry v. Ohio, 392 U.S. 1 (1968)

b. Minnesota v. Dickerson, 508 U.S. 366 (1993)

v. Plain view
   1. United States v. Henry (1958)
   2. Harris v. United Stated, 243 F. 3d 806 (1968)
   3. Coolidge v. New Hampshire, 403 U.S. 433 (1971)
   4. Horton v. California, 496 U.S. 128 (1990)
   5. Michigan v. Tyler, 436 U.S. 499 (1978)
   6. Mincey v. Arizona, 437 U.S. 385 (1978)
   7. Texas v. Brown, 460 U.S. 730 (1983)
   8. United States v. Irizarry (1982)
   9. Arizona v. Hicks, 480 U.S. 321, 107 S. Ct. 1149, 94 L. Ed. 2d. 347 (1987)

vi. Automobile
   1. Carroll v. United States, 267 U.S. 132, 153 (1925)
   2. New York v. Belton, 453 U.S. 454 (1981)
   3. United States v. Ross, 456 U.S. 798 (1982)
   4. California v. Acevedo, 500 U.S. 565, 114 L. Ed. 2d 619, 111 S. Ct. 1982 (1991)
   5. Pennsylvania v. Labron, 518 U.S. 938, 116 S. Ct. 2485 (1993)
   6. Wyoming v. Houghton, 525 U.S. 295, 956 P. 2d 363 (1999)

vii. Open field
   1. Oliver v. United States, 466 U.S. 170, 181 (1984)
   2. United States v. Dunn, 480 U.S. 294, 304 (1987)

1.8 Explain justifications for denying unauthorized persons access to a crime scene.

A. Penal Code, Sec. 30.05: Criminal Trespass
B. Penal Code, Sec. 37.09: Tampering With or Fabricating Physical Evidence
C. Code of Criminal Procedure, Sec. 49.22: Sealing Premises of Deceased

Unit 2 Preparing a Crime Scene Investigation

Unit Goal: Process for preparing a crime scene investigation.

2.1 Identify a guide for organizing a plan of action.

A. Mentally reconstruct the crime based on:
   i. Information from the responding officer(s)
   ii. Quick observation/scan of the scene
   iii. Physical evidence that is in plain view
B. Based on a mental reconstruction, establish an organized plan of action.

i. Basic guidelines include:

1. Assign one person to be in charge.
2. Establish a command post center (headquarters) consisting of a search team, tools and equipment, communications, etc.
3. Task assignments should be disseminated in writing; verbal direction may be misinterpreted or simply disregarded.
4. Personnel given assigned tasks must be made aware of the specifics of their assignments; no assumptions can exist in this area.
5. Trading of assignments should not be permitted without authorization by the officer in charge.
6. Utilize a systematic checklist or other method to ensure a duplication of job effort is avoided.
7. Make assignments concurrent with the aptitude and training of the personnel involved.
8. Do not permit personnel to begin the search until a briefing has been conducted describing the goals and direction of the search to all persons involved.
9. Make no inferences that one duty is of greater or lesser significance than other tasks.
10. Written reports are to be submitted for all assignments.
11. For major or complicated crime scenes searches, establish an area in a separate location for communication and decision-making.
12. Ensure that agreements with all agencies in multi-jurisdictional crime scene searches are coordinated.

2.2 Explain important considerations for establishing a command post center and a search team.

A. Establish a headquarters and assemble personnel outside the area to be searched.

i. This command center can also be used for:

1. Providing protective gear and wardrobe
2. Special equipment
3. Food
4. Shelter
5. Medical assistance
6. Duty/shift assignments
7. Security to personnel.

B. In order to resolve any questions during the crime scene search, establish contact between medical examiners, laboratory personnel, and the prospective attorney.

C. Relevant information given to the search party should include:
    i. Basic information on the crime that was committed.
    ii. The type of materials to be sought and reasons.
    iii. The search method(s) to be used.
    iv. Guidelines for proper evidence recovery.
D. The need for a careful and thorough search must be emphasized to the search party
    i. A defeatist attitude is contagious and results in a poor search.
    ii. Emphasize the necessity:
        1. Evidence will likely be located if the time and effort are expended in a methodical manner.
        2. Nothing is to be excluded from consideration and the search will not be concluded until personnel are certain all possibilities have been explored.
        3. Extensive/detailed note taking
E. Remind the party to proceed with caution and coordinated movements
F. Provide some means of communication, such as radio contact between the search parties and the officer in charge
G. The supervisor's responsibility is to ensure a complete, thorough, and careful search of all areas. This may require a recheck of areas previously covered.
    i. An effective procedure for rechecking is to:
        1. Alternate search groups
        2. Alternate searchers within the groups

2.3 Identify a guideline for determining the search method and a starting point of the search.

A. Determine the search method.
    i. Consider the size and type of area to be searched.
    ii. Consider personnel and equipment necessary and available.
        1. Indoor scenes, depending on their size and content, usually require only a 2-person team.
        2. Outdoor scenes, performed by two or more individuals, are more effective if the search is well organized.
    iii. Consider the degree of thoroughness required depending on the following:
        1. Relevant case circumstances
        2. Physical evidence sought
        3. Purpose of the search
B. Determine the starting point of the search

i. Since all crime scenes are unique in circumstances and characteristics there can be no set procedure that will apply in each search.

ii. Each scene must be studied and thoroughly planned to ensure complete coverage of the search area.

2.4 List the various types of search methods.

A. Strip or line search

i. This method, in both double and single form, is among the most effective for outside searches due to its thoroughness.

ii. Stakes and lines are useful in setting up lanes.

iii. Natural landmarks may be used as boundaries or lane markers.

B. Grid search

i. A variation of the strip or line search utilizing two compass directions.

ii. This type of search is useful for providing two views of the same area.

C. Circular (spiral or concentric) search

i. This type of search is useful when an item is missing from the center and the search must be conducted rapidly.

ii. The search may begin in the inside working outward, or vice-versa as the circumstances dictate.

D. Quadrant, sector, or zone search

i. This type of search is effective for indoor and outdoor scenes that have regular patterns or defined borders.

ii. This type of search also permits different types of searches in the different sectors.

iii. Subdivide the scene into areas or sectors:

1. A building into rooms
2. A bookshelf into sections
3. A vehicle into sections

2.5 Identify some investigative tools and equipment that are recommended for performing crime scene searches.

A. Refer to department policy and protocol

B. Recommended tools and equipment:

i. Personal Protective Equipment (PPE, Universal Precautions) (i.e. Gloves, protective suit, shoe covers, face shield, mask, hair cover, respirator, etc.)

ii. Writing implements (pens, pencils, markers, investigative notebook)

iii. Body bags and body bag tags

iv. Communication equipment (cell phone, radio)

v. Flashlight
vi. Camera – DSLR recommended (with extra batteries, media cards, external flash, chargers, etc.)
vii. Measurement instruments (tape measure (25', 300'), ruler (6" , 12" and ABFO scale), rolling measuring tape, laser measure, etc.)
viii. Watch
ix. Preservation bags (for hands, feet, etc.)
x. Specimen containers (for evidence items and toxicology specimens)
xi. Disinfectant (Universal Precautions)
xii. Departmental scene forms (consent to search, field notes packet, graph paper, evidence submission log, important phone lists, etc.)
xiii. Evidence packaging material
xiv. Clean white linen sheet (stored in plastic bag)
xv. Evidence tape
xvi. Weather gear (raincoat, umbrella, coat, hat, gloves, etc.)
xvii. Tape, rubber bands, and string
xviii. Pocketknife
xix. Trace evidence kit
xx. Thermometer
xxi. Crime scene tape
xxii. First aid kit
xxiii. Latent print kit
xxiv. Plastic trash bags
xxv. Gunshot residue collection kits (GSR)
xxvi. Photo placards / evidence markers (signage to ID case in photo)
xxvii. Rubber Boots
xxviii. Hand lens / loupe (magnifying glass)
xxix. Portable lighting
xxx. Barrier sheeting aka, privacy screens (to shield body/area from public view)
xxxi. Reflective vest
xxxii. Audio/video recorder
xxxiii. Basic hand tools (bolt cutter, shovel, trowel, paintbrushes, sheetrock saw, machete, etc.)
xxxiv. Personal comfort supplies (insect spray, sunscreen, hat, etc.)
xxxv. Presumptive blood test kit

xxxvi. Chalk / marking paint / snow wax

xxxvii. Directional marker/compass

xxxviii. Tarps – to protect evidence from weather

xxxix. Traffic cones and flares

xl. Biohazard bags

xli. Impression recovery kit

xlii. Tool kit (screwdrivers, hammer, socket set, wrenches)

xliii. Chemical enhancement supplies

xliv. Entomology (insect) collection kit

xlv. Extension cords

xlvi. Forensic light source (barrier goggles / filters)

xlvii. Generator / power inverter

xlviii. Shooting trajectory kit

xlix. Metal detector

l. Mirror / fiberoptic scope

li. Refrigeration or cooling unit

lii. Shoe print lifting equipment

2.6 Identify samples of evidence collection kits recommended for crime scene searches.

A. Blood Collection

i. Bindle

ii. Coin envelopes

iii. Disposable scalpels

iv. Distilled water

v. Ethanol

vi. Evidence markers

vii. Sterile swabs / gauze

viii. Photographic ruler (ABFO scales)

B. Bloodstain Pattern Documentation

i. Measurement scales (adhesive, magnetic, etc.)

ii. Scientific calculator

iii. Tape

iv. Permanent markers

v. Protractor

vi. Calipers / loupe

vii. String
viii. Yard stick

C. Excavation
   i. Cones / markers / flags
   ii. Evidence identifiers
   iii. Metal detectors
   iv. Paintbrushes
   v. Shovels/trowels
   vi. Sifting screens
   vii. String
   viii. Plumb bob
   ix. Wooden / metal stakes

D. Toolmarks
   i. Casting materials
   ii. Measurement scales

E. Latent Print
   i. Lift cards (various sizes, black and white, etc.)
   ii. Brushes (fiberglass, magnetic, feather, camel hair, etc.)
   iii. Presumptive chemicals
   iv. Chemical enhancement supplies
   v. Cyanoacrylate (super glue) wand/packets
   vi. Lift tape (various sizes)
   vii. Forensic light source
   viii. Measurement scales

F. Impression / Pattern Print Recovery
   i. Dental stone
   ii. Bowls/mixing containers
   iii. Boxes
   iv. Water
   v. Evidence markers
   vi. Measurement scales (L scale, tri-fold)
   vii. Permanent markers
   viii. Snow print wax
   ix. Casting frame

x. Impression hardner (spray adhesive)
xi. Chemical enhancement supplies
xii. Gel lifters
xiii. Wide format lift tape
xiv. Electrostatic dust lifter
xv. Paper or large lift cards

G. Trajectory
i. Rods
ii. Canned smoke
iii. Protractor
iv. Laser
v. White and black cards
vi. String
vii. Mirror

H. Trace Evidence Collection
i. Acetate sheet protectors
ii. Bindle paper
iii. Clear tape / adhesive lift / sticky note
iv. pads
v. Flashlight (oblique lighting)
vi. Forceps/tweezers
vii. Metal tins
viii. Trace evidence vacuum with disposable collection filters.
ix. Plastic Specimen containers
x. Razor blades

I. Camera
i. DSLR camera with kit lens, strap, and user manual
ii. Lenses (Macro (or diopters) / telephoto)
iii. Tripod
iv. Shutter release
v. Level
vi. Filters (UV, neutral density, polarizing, barrier)
vii. External flash with sync cord
viii. Batteries and chargers

ix. Media cards (SD, CF, etc.)
x. Measurement scales

J. Entomology
i. Butterfly net
ii. Disposable tweezers
iii. Ethyl alcohol
iv. Ethyl acetate
v. 16 oz. kill jar
vi. 2 oz. glass jar
vii. 24 oz. plastic maggot container
viii. Pipettes
ix. Cotton balls
x. Trowel
xi. Labels
xii. Thermometers
xiii. Magnifier

Unit 3 Investigating a Crime Scene

Unit Goal: Major issues of crime scene investigation.

INSTRUCTOR NOTE: Refer to department policy/protocol for particular order of steps.

3.1 List a basic guideline for conducting a crime scene search.

A. The basic steps of which a crime scene search normally progresses are as follows:
i. Approach scene
ii. Secure and protect
iii. Establish entry and exit
iv. Preliminary survey
v. Narrative description
vi. Photograph scene (overall photos)
vii. Identify, mark, and document evidence.
viii. Sketch scene
ix. Detailed search
x. Mark and document additional evidence.
xi. Collection of evidence and establish chain of custody
xii. Fingerprints/Latent prints

xiii. Debriefing

xiv. Final survey to ensure conditions of the crime scene have been documented as thoroughly as possible and all evidence is collected.

xv. Transport evidence, body, etc.

xvi. Notify next of kin

xvii. Create case file

xviii. Lab results, autopsy, etc.

xix. Press release or news conference

xx. Follow-up investigation

3.2 Identify the methods of conducting a preliminary investigation.

A. Basic steps of a preliminary investigation:

i. Upon arrival at the scene, determine if a crime has been committed. (The specific crime and elements of the offense.)

ii. Cautiously approach and enter the crime scene, perform a “walk through,” remaining observant of any person, vehicles, events, potential evidence, and environmental conditions.

iii. If applicable, provide first aid to injured persons, request emergency medical attention and advise them of the areas of potential evidence to minimize destruction (i.e. cutting through bullet holes, knife tears, etc.).

iv. Determine if a weapon is involved and secure it. Leave weapon in place unless it constitutes an immediate threat.

v. Locate and interview victims and witnesses. Keep witnesses separated. Be aware of any persons or vehicles attempting to leave the scene.

vi. Obtain identification of witnesses’ name, date of birth, address, residential telephone number, place of employment, and work phone number and other important information.

vii. Document specific information in “field notes” regarding the crime scene.

viii. Identify and arrest the person responsible, if possible. Determine whether a "fresh pursuit" would be of value (if the suspect is still in the vicinity).

ix. Conduct a neighborhood or door-to-door canvass, if necessary.

x. Remain alert and attentive.

B. Protection of a crime scene

i. Establish defined entry and exit points to minimize loss, destruction, and contamination of evidence.

ii. Establish an inner and outer perimeter using street barricades, ropes, crime scene tape, or additional personnel around the perimeter to keep unauthorized persons out.

C. Field notes

i. Develop a note-taking system, such as using initials instead of complete names. However, do not make it difficult for others to interpret your notes.

ii. Use spiral notebooks, field interview (FI) cards, crime scene field note packet, tape recorders, body camera video(s), etc.

iii. Obtain and record the following information:

1. Who: observed the crime? Saw the suspects? Committed the crime? Had a motive for committing the crime? Accompanied the suspect? Called the police? Is/was the victim?
2. What: crime was committed? Was stolen, damaged, or otherwise affected? Evidence has been located? Statements were made? Additional information is needed?
3. When: was the crime reported? Did the crime occur? Were the police notified? Was any evidence located?
4. Where: did the crime occur? Was the evidence located? Do the suspects live? Do the witnesses live?
5. Why: was the crime committed? Was that victim chosen? Was that location chosen? Was that specific property taken? Was that specific property taken?
6. How: did the suspects get in? Was the crime committed? Was evidence discovered?

D. Potential evidence

i. Once evidence has been located, remind personnel not to touch, move, or handle the items, in any way, until the evidence has been:

1. Photographed
2. Sketched
3. Documented

3.3 Identify the importance for establishing a chain of custody.

A. A record of all individuals who handle the evidence, as well as any details of events.

B. Documentation should begin during the preliminary investigation.

C. Ensure that evidence bags, envelopes, and tags are created and filled out properly.

D. Each time the evidence exchanges possession from one person to another, or moves from one location to another, the investigator must record this transaction.

E. It is critical to record all pertinent information possible and maintain the chain of custody.

F. Always follow department policy and protocol.

3.4 Explain the importance for debriefing the search team.

A. Usually established and conducted by investigator(s) who oversee the search

B. Conducted before the final survey to ensure that any additional revelations discovered by investigative personnel is addressed.

C. Provides an opportunity for input regarding future follow-up investigation, special requests for assistance, and the establishment and verification of post-scene responsibilities (Body identification, notification, press relations, and evidence transportation).

D. Determines/identify the need for a specialist (e.g. crime laboratory personnel, social services, entomologists, anthropologist, OSHA, etc.).

E. Communicate with the pathologist about responding to the scene or to schedule an autopsy, if necessary.

F. Share investigative data (if collaborating with other law enforcement agencies/jurisdictions).

G. Helps in following ways:

   i. Determine what evidence was collected

   ii. Discuss preliminary scene findings with team members.

   iii. Discuss potential technical forensic testing, crime laboratory, storage facility, and the sequence of tests to be performed.

H. Good opportunity for investigators and other responders to ensure that the crime scene search is complete.

I. Allows law enforcement officials to prepare a press release or public news conference, if necessary.

J. Allows the investigator (s) in charge make special requests and to remind all responders of maintaining confidentiality of case.

K. Follow department policy and protocol.

3.5 Explain the importance for conducting a final survey of the crime scene.

A. A final survey of a crime scene consists of a final walk through of the crime scene.

B. This ensures that evidence has been collected and scene has been processed prior to release.

C. Also ensures that evidence, equipment, or materials are not inadvertently left behind and dangerous materials or conditions have been reported and addressed.

D. During the walk through, the following should be ensured:

   i. Each area identified as part of the crime scene is visually inspected

   ii. All evidence collected at the scene is accounted for

   iii. All equipment and materials generated by the investigation are removed

   iv. Any dangerous materials or conditions are reported and addressed.

v. Any damage created by investigative personnel is documented and photographed

vi. Crime scene is released in accordance to department policy

3.6 Discuss process of securing the remains and notifying next of kin.

A. In the event of a death investigation where appropriate:

i. Ensure the body (remains) is secure.

ii. Ensure the labeling, packaging, and documentation of the body

iii. Ensure the appropriate ID tag is placed on the body to preclude misidentification upon receipt at the examining agency.

iv. Ensure all potential evidence is safe-guarded and property and clothing remain on the body.

v. Prior to leaving the scene, ensure the body is protected from further trauma or contamination, and unauthorized removal of therapeutic and resuscitative equipment.

vi. Ensure all property of the person is identified.

vii. Ensure all DNA samples are recovered.

viii. Ensure the body is properly placed in the bag and an evidence locking device prevents the bag from being opened.

ix. Supervise the removal of the remains.

x. Maintain jurisdiction over the body and record any transactions.

xi. Ensure appropriate officials sign the death certificate and other respective documents.

xii. Next of kin of a deceased victim(s) should be notified as soon as possible.

xiii. Notification initiates disposition of the remains and facilitates the collection of additional information relative to the case and informs the family of the following:

1. If an autopsy is required.
2. Available support services (e.g. victim assistance, police, social services, etc.)
3. Appropriate agencies to contact with questions or additional information.

3.7 Explain the importance for maintaining a case file.

A. Reports and other documents are compiled into a case file by the investigator(s) in charge of the search.

B. The file is a record of all actions taken and evidence collected at the scene.

C. This documentation allows for independent review of the work conducted, or if preparing a case for prosecution.

D. A case file contains the following information:

i. Initial responding officer(s) documentation

ii. Emergency medical personnel documentation
iii. Crime scene log for entry and exit documentation
iv. Photographs/videos/3-D scans
v. Crime scene sketches/diagrams
vi. Evidence documentation/copies of tags
vii. Other responder's documentation
viii. Record/copy of consent form or search warrant
ix. Forensic reports, as they become available

3.8 Explain the importance for conducting a follow-up investigation.

A. Reasons for conducting a follow-up investigation:
   i. Conducted to follow-up on leads pertinent to the case once the preliminary investigation has been concluded.
   ii. Should be based on what is discovered or learned during the preliminary investigation.
   iii. Consists of double-checking on addresses, possible escape routes, and other leads that may provide important new information.
B. Tasks performed in a follow-up investigation include the following:
   i. Analyzing reports and documents to ensure accuracy.
   ii. Reviewing official departmental records and files for more evidence.
   iii. Gathering information on friends and associates of suspect(s).
   iv. Examining the victim's background.
   v. Checking police intelligence files to develop potential suspect(s).
   vi. Organizing police actions, such as neighborhood canvassing, raids, and search warrants.
   vii. Returning to the scene to collect additional photographs and evidence based on new information developed during the follow-up investigation.

Unit 4 Sketching and Photographing

Unit Goal: The use of sketches and photographs during crime scene searches.

4.1 List the main reasons of using crime scene sketches.

A. Reasons for preparing crime scene sketches:
   i. To provide a permanent record of conditions otherwise not easily recorded (i.e., distance, photography, and movement of suspect).
   ii. To reconstruct the crime scene.
   iii. To record the location and spatial relationships between pieces of evidence and the surroundings.

iv. To help refresh the investigator's memory.

v. To help corroborate testimony of witnesses.

vi. To eliminate unnecessary and confusing details.

vii. Can be enlarged for use as an exhibit during courtroom testimony.

4.2 Identify the contents of a crime scene sketch.

A. The crime scene sketch should include the following information:

i. Investigator's complete name and rank.

ii. Date, time, type of crime, and assigned case number, complete name of other officers assisting in the making of the sketch (measuring, etc.).

iii. Address of the crime scene, its position in a building, landmarks, and so on.

iv. Scale of the drawing (if no scale, indicated by printing "not to scale").

v. Primary items of physical evidence and other critical features of the crime scene, located by detailed measurements from at least two fixed points of reference.

vi. Key or legend identifying the symbols or points of reference using in the sketch.

vii. Dimensions of rooms or areas contained in the sketch

4.3 List the types of crime scene sketches.

A. Types of sketches

i. The rough sketch

1. A rough sketch is a basic drawing of a crime scene.
2. Usually drawn on 8 ½ by 11-inch note or graph paper, using a clipboard and a pencil. It is not drawn to scale.
3. It should be as accurate as possible, under the circumstances, without deliberate distortion, and it should contain all measurements necessary to make a scale drawing.
4. The rough sketch must be done entirely at the scene.
5. Additional "remembered" details should never be placed on a rough sketch after you have left the scene.

ii. The finished sketch

1. A finished sketch is a precise rendering of the crime scene.
2. Like the rough sketch, the typical finished sketch is not drawn to scale (this fact should be clearly indicated on the sketch), but it should contain all the necessary information for producing a scale drawing of the crime scene.

iii. The scale drawing

1. The scale drawing is a blueprint of the crime scene, drawn in ink on a large display board (Ex: 30 inches by 36 inches); and to be used for court presentations. All details in the drawing should be large enough to be seen at least 15 feet away by jury members.

2. The drawing should be drawn to exact scale, with the scale reduction (Ex: ½ inch equals 1 foot), indicated clearly on drawing.
3. Since the drawing is to scale, distance arrows and measurements indicating the exact location of the evidence should not be included.
4. If requested, dimensions and descriptions can be placed on the scale drawing in the courtroom by using your rough or finished sketch for reference.

iv. The perspective sketch
1. Objects are drawn or computer generated as they appear to the eye with reference to relative distance or depth.

v. The projection sketch
1. Most frequently used.
2. All places and objects are drawn in one plane, as seen from above.
3. Cross projection drawing is where walls and ceiling of a room are seen as folded out into the same plane on the floor.
4. This type of drawing is used to illustrate interrelationships between objects in different planes, such as bullet holes and blood stains.

vi. The schematic sketch
1. Used to represent an orderly combination of events that has occurred. (Ex: tracing the path of a fired bullet through glass, flesh, or walls; tracing the path of a skidding vehicle.)

vii. The detailed sketch
1. Used when describing a small area which is not illustrated due to the scale chosen for the rough or finished drawing.
2. Used when small items of evidence must be illustrated prior to their removal from immovable objects. (Ex: bullet holes, tool marks, blood spots or patterns, on the location of a latent fingerprint.)

viii. Prevalent sketch
1. Sketch of the general locality.
   a. A sketch of the scene of the crime and surrounding environment.
   b. This sketch would, for example, include other buildings, roadways or the presence of miscellaneous material nearby.
   c. An arson scene is an example of one that might require this type of sketch in order to illustrate the proximity of combustible material.

ix. Three-Dimensional (3D) Rendering
1. Created using “laser” scanning technology
2. Computer generated via device software
3. Precise measurements of scene and evidence

4.4 Describe the elements of crime scene sketches.

A. Measurements
   i. A decision must be made on the scope of the sketch.
   ii. Take measurements with equal accuracy whenever possible. Always indicate the method used to arrive at a given dimension, such as the rule or pace.
   iii. The sketcher should always have control of taking and observing the measurements.
   iv. While measurements may be indicated between movable objects to establish a correlation, at least one set of dimensions must reach immovable objects or positions. This should be clearly identified in the notes as reference points.

B. Compass direction
   i. A standard arrow of orientation pointing to the north must be present in order to facilitate proper orientation of the sketch.

C. Scale or proportion
   i. This will normally be dependent upon the area to be portrayed, the amount of detail to be shown, and the size of the drawing paper. The scale can be determined by dividing the longest measurement of the drawing paper. (Ex: A scene 70' X 100' and drawing paper approximately 8" X 10", would require a scale of 1" = 10 feet.)
   ii. Areas may not be in proper proportion in the sketch but this will be corrected when proper measurements are reproduced to the scale.
   iii. Legends or key
      1. An explanation of symbols used to identify objects in the sketch.
      2. Excessive lettering should be avoided, so objects are given numerical or letter designations.
      3. When the scene consists of large outdoor sites, conventional signs used on maps can be used advantageously.
      4. When possible, the legend must be unmistakably related to the sketch so the sketch will have meaning.
   iv. Title
      1. The title should contain data necessary to authenticate it.
      2. The following information should be included:
         a. Case identification (number)
         b. Date and hour of case or incident (when sketch is prepared)
         c. Scene portrayed
         d. Location sketched
         e. Person who sketched the scene

f. Scale

g. Legend or Key

4.5 Identify types of methods for developing a sketch.

A. Triangulation – a bird's eye view of the scene

i. Measurements are made by triangulation from two fixed permanent objects within the area of the crime scene to the point you desire to plot and illustrate in the sketch. (Ex: fixed starting points may be the corners of a room. From these fixed points, measurements are made to the various objects within the scene.)

1. NOTE: By calculating the reduced distances on a scale drawing and scribing arcs from the fixed points indicated, the point at which the arcs intersect is the exact location of the object.

B. Rectangular coordinates

i. Objects are located in this method by their distance from two mutually perpendicular lines.

ii. Graph paper can be used for making these straight-line measurements.

iii. Make sure that the straight-line measurements taken from a given base line are taken with the rule at right angles with the given base line. Only then will the finished scale drawing be an accurate representation of the scene.

C. Transecting base line

i. Transect crime scene by laying down tape at some convenient point so it crosses entire area as from A to B.

ii. Measure perpendicular distance C and record.

iii. Now objects within the crime scene can be located or plotted by measuring their distance from this established base line.

iv. Distances, for example, from points 1, 2 and 3, and so on, to your base line are measured at right angles to the tape.

v. This system is particularly useful in large, irregularly shape outdoor areas where no satisfactory natural base line exists.

vi. This system could be used in large outdoor scenes such as; major disasters, airplane crashes, scattered human remains, etc.

D. General considerations: Sketching, if properly accomplished, can lend accuracy and precision to an officer's testimony. The officer's position in court is enhanced by being able to produce accurate measurements showing the location of evidence and their location relative to other evidence.

4.6 List the main reasons for photographing a scene.

A. Reasons for taking crime scene photographs:

i. Photographs set forth a visual record and chronology of the crime scene investigation.

ii. Crime scene photography is one of the major integral facets of the entire investigative process.

4.7 Discuss general camera equipment and accessories.

A. DSLR camera with kit lens, strap, and user manual

i. Digital Single Lens Reflex (DSLR) camera with detachable lenses are versatile and can be used in a variety of environments.

B. Lenses (macro, telephoto, zoom)

i. Macro lenses are used for examination quality (close-up) pictures.

ii. Zoom lenses are used for general crime scene photos.

C. Tripod

i. Used to stabilize and align camera to produce sharply focused photos.

ii. Useful in timed exposure or low light situations.

D. External flash

i. Used as supplemental light for various crime scene environments.

4.8 Explain important considerations of crime scene photography.

A. If at all possible, take photographs before the scene is disturbed.

B. Numerous photographs should be taken. If there is ever doubt as to whether a photograph should be taken, the best solution is to take it.

C. Measurement scales

i. Measurement scales should be used when photographing elements of a crime scene for size and distance relationships.

ii. Subject matter should first be photographed as is before a scale is added.

4.9 Identify three major vantage points involved in the coverage of a crime scene, as they relate to photography.

A. A sequence of photographs showing all pertinent locations in an organized manner must be compiled to adequately exhibit a crime scene.

B. Subject matter found in a crime scene should be represented by a progression of "general to specific."

C. To achieve a progression, the crime scene should be covered by photographs from three major vantage points:

i. Overall/Long-range photographs

1. These are usually an overview of the scene and are considered location establishing photographs.

2. Examples include: overview of a location, aerial photographs from drone or aircraft, etc.

ii. Mid-range photographs

1. Usually taken in a manner which portrays the scene from approximately ten to twenty feet of distance from the subject.
2. In order for the viewer to associate the general crime scene with separate areas photographed, sufficient detail should be contained in each photograph to allow this association.

iii. Close-up photography

1. Normally taken five feet or less from the subject matter.
2. Detailed photographs of items that could not be effectively seen and studied in long-range or mid-range photographs.

4.10 Identify the different categories of "range" photographs.

A. The different "range" photographs can usually be categorized by the following:

i. Focusing on the location of the crime

1. These photographs depict various places that are part of the crime scene area. Example: aerial photographs (exterior and interior).

ii. Concentrating on the nature of the crime

1. The nature of the crime should try to be depicted which will assist the investigator in determining type of crime committed.

iii. Centering on the results of the crime

1. Example: a homicide may have begun with a house break-in through a kitchen window, continued with vandalism and culminated with homicide when the victim confronted the intruder.
2. The results of each portion of a crime are depicted in sequence to reproduce events.

iv. Featuring the physical evidence existing at the scene

1. These are of great relevance to the investigation.
2. Pictures of all evidence as it relates to a crime scene will ultimately enable the connection of the evidence to be made with the scene.
3. Examination quality photos include:
   a. Must include a scale.
   b. Must be taken at 90 degrees to the plane of the surface.
   c. Must use low ISO setting (i.e. ISO 100 or 200).

v. Focusing on follow-up activity not directly occurring at the scene

1. Example: autopsy photographs; photographs of live victims or suspects to show bruises or other wounds.

4.11 Identify some general standards used to review the credibility of crime scene photographs.

A. No matter how extensive the photographic efforts are at a crime scene, they must withstand the test of legal admissibility.

B. General standards used to review the credibility of crime scene photographs:

   i. Accurate representations

   ii. Free of distortion

   iii. Material and relevant

   iv. Unbiased

4.12 Describe the relationship between crime scene sketches and crime scene photographs.

A. General comparisons of crime scene sketches and photographs:

   i. Sketches combine features of both notes and pictures.

   ii. Photographs portray great detail.

   iii. Sketches eliminate unnecessary detail.

   iv. Photographs provide permanent record of items that may be overlooked or forgotten.

   v. Photography, being a two-dimensional representation of the scene of a crime, does not provide accurate information concerning the distance between various points in the scene.

   vi. A sketch provides true distance relationships which will complement and supplement photographic representations of the crime scene.

   vii. In a photograph, objects in the foreground are often distorted as compared with those in the background.

   viii. Frequently only part of a scene can be shown in a photograph.

   ix. Sketches are not a substitute for notes or photographs. They are merely a supplement to photographs.

   x. Sketches, photographs, and notes can be utilized together to provide the most accurate account of what happened.

4.13 Demonstrate crime scene sketching and photographing.

Unit 5 Fingerprinting

Unit Goal: Process of producing fingerprint evidence during a crime scene search.

INSTRUCTOR NOTE: The term fingerprint will be used throughout to refer to the friction ridge skin that covers the palmer surfaces of the hands and the plantar surfaces of the feet.

5.1 Explain the value of fingerprints as physical evidence.

A. Fingerprints as evidence

   i. Relate directly to the ultimate objective of every criminal investigation, the positive identification of the offender.

ii. Prove person's presence at crime scene.

iii. Frequently present at a crime scene.

5.2 Explain why fingerprints are unique and persistent.

A. Fingerprints are unique.

i. Fingerprints are formed during fetal development.

ii. Differential growth

B. Fingerprints are persistent.

i. The arrangement of the fingerprint detail remains throughout life barring injury or disease.

ii. Permanent record of individual throughout life

5.3 Explain fingerprint comparison and identification.

A. Types of fingerprint patterns:

i. Arch

ii. Loop

iii. Whorl

B. Comparisons are performed side by side between the latent and the known.

C. Fingerprint identification

i. Fingerprints are unique and persistent.

1. An identification is made by comparing the ridge detail in two prints to determine whether or not they originated from the same source.

ii. Points/characteristics used for comparison

1. Bifurcation – ridge splits into two ridges
2. Ending ridge – ridge ends
3. Dot – single ridge unit

D. There is no scientific basis for a specific number of comparison points required for an identification.

E. The quality/clarity of the latent print affects the amount of information needed to reach a definitive conclusion.

5.4 Describe the differences between latent, patent, and plastic prints.

A. Latent prints

i. Prints are hidden or unseen and require some form of development.

ii. Flashlight can be effective for searching.

iii. If located, photograph prior to processing and recovering.

iv. The term “latent prints” will be used to describe the following three types of prints.

B. Patent prints

i. Print is visible without any development.

ii. Visible prints can be left in material such as blood, oil, grease, or another contaminant.

iii. Photograph and collect if possible.

C. Plastic prints

i. Print is left in a three-dimensional medium like clay or wax.

ii. Photograph and collect if possible.

5.5 Explain the process of searching and recovering latent print evidence.

A. Techniques for locating latent prints

i. Flashlights are effective search tools. Utilize both oblique and direct lighting.

ii. Points of entry and exit should be carefully examined.

iii. Any surface that has been touched is a potential place to locate latent prints.

B. Protecting latent print evidence

i. Utilize PPE (especially gloves) to prevent leaving your own prints.

ii. Always be mindful of how objects/surfaces are handled to avoid destroying fragile latent print evidence.

C. Collecting evidence from scene

i. Porous evidence and moveable objects are commonly collected to be processed in a controlled environment away from the scene.

ii. Avoid packaging multiple non-porous objects together as they can rub against each other.

iii. Paper bags, envelopes, and boxes are typically the best way to package the evidence.

iv. Avoid packaging adhesive surfaces in paper bags; instead lightly place them on acetate sheets or non-stick foil prior to packaging.

D. Processing on scene

i. Large objects that cannot be easily collected commonly need to be processed on scene.

ii. When latent prints are located during visual examination, photograph with scale prior to processing (DSLR camera with macro lens/diopters). The scale should contain relevant case information.

iii. Apply fingerprint powder to areas of interest utilizing appropriate brush/wand.

1. Black powder is the most commonly used powder and can be used on most non-porous surfaces regardless of surface color.

2. When used a dark colored vehicle, oblique lighting is utilized to visualize the developed latent prints.

3. Black powder usually provides optimum contrast against a white background of a lift card.
4. Other colors are available as needed to provide optimal contrast (ex: bi-chromatic, grey, and fluorescent powders).

iv. Avoid using too much powder and use care when brushing the surface of interest.

v. Once a latent print becomes visible, be careful not to over process and potentially destroy the latent print.

vi. It is sometimes possible to brush away excess powder by careful brushing around the latent print with a camel hair brush.

E. Recovering developed latent prints

i. When latent prints are developed, photograph with scale prior to lifting (DSLR camera with macro lens/diopters). The scale should contain relevant case information.

ii. Obtain a piece of tape (or other type of lifter) that is large enough to cover the latent print.

iii. Press the sticky side of the tape onto the impression while avoiding air bubbles.

iv. Ensure the tape completely adheres to the surface by rubbing the entire surface starting in the center and working toward the edges. A small squeegee or small plastic card can be used to disperse air bubbles.

v. Carefully remove the tape and place onto a contrasting background (ex: black powder lift on to a white latent lift card).

vi. Record relevant case information onto lift card including but not limited to:

1. Date
2. Case number
3. Description of lift location
4. Diagram with orientation arrow
5. Initials of official

vii. Gloves should be worn through the lifting process; however, if they were not, make sure to strikethrough any prints that were inadvertently left on the edges of the tape and initial the strikethrough.

viii. Subsequent lifts can be attempted if desirable results were not achieved.

F. Superglue fuming

i. Effective method of processing non-porous and semi-porous surfaces and potentially protecting latent print evidence.

ii. Place appropriate amount of superglue [depends on size of tank; a dime size amount is appropriate for the size of an aquarium] on a foil dish.

iii. A hot plate can be used to accelerate development.

iv. Place a test print inside the tank to monitor the fuming process.

v. Take care not to over-fume the evidence (fuming times vary; 8-15 minutes is usually sufficient in an aquarium-sized tank utilizing the hot plate.)

vi. Developed prints can appear white; further processing may be required to visualize all developed prints.

G. Conditions that affect latent print development

i. Weather

ii. Condition of the skin

iii. Transferable material

iv. The surface area

1. Wet items should be allowed to dry prior to processing.

H. Forensic Light Sources

i. Can be used to search for inherent latent print fluorescence.

ii. Can be used to view items treated with fluorescent powders or other fluorescent chemicals.

5.6 Describe the use of the Automated Fingerprint Identification System (AFIS).

A. How AFIS works

i. Fingerprints are imported into an AFIS computer.

ii. AFIS utilizes algorithms to search unknown prints against known database(s).

iii. Potential candidates can be provided from the automated search for a latent print examiner to compare.

iv. Unidentified latent prints can be stored in AFIS and will constantly be compared with new fingerprint records.

5.7 Explain the methods of rolling a full set of legible fingerprints on a standard DPS/FBI fingerprint card.

A. Condition of a person's hands prior to fingerprinting.

i. Visually examine the person's hands and fingers.

1. There are temporary disabilities affecting an individual's hand, which are sometimes beyond the control of the identification officer. Example: fresh cuts or wounds, bandaged fingers, occupation (carpenter, bricklayer, and other), blisters, excessive perspiration, or any other disability.

2. Considerations:

a. Excessive perspiration causes the inked impressions to be indistinct. In this case, wipe the finger with a cloth and then immediately ink the finger and roll it on the fingerprint card. This process should be followed with each finger. Fingerprints should then be wiped with alcohol.

b. When an injury is temporary, the prints, if possible, should not be taken until after the injury has healed. If printing cannot be performed at a later time, document the injury on the relevant portion of the fingerprint card.

c. Different fingerprinting techniques can be used when physical problems so indicate. The most common equipment includes: spatulas, small rubber roller, curved holder for individual finger, block or strip cardstock.

ii. Have the person clean their hands and fingers with soap and water or a good waterless hand cleaner.

B. Techniques for rolling fingerprints

i. Use the following recommended equipment:

1. Inking plate.
2. Cardholder.
3. Printer's ink (paste type).
4. Roller.

ii. To obtain clear and distinct fingerprints, practice the following:

1. Use a thin coating of ink.
2. The inked surface should be at a height where the person's forearm can assume a horizontal position when the fingers are being inked.
3. Use standard 8" x 8" fingerprint cards and card holder(s).

iii. Person should stand in front of and at forearm's length from the inking plate.

iv. In order to take advantage of the natural movement in making finger impressions, the hand should be rotated from the more difficult to the easiest position as follows:

1. This requires that the thumbs be rolled toward the center of the person's body.
2. This requires that the finger be rolled from the center of the person’s body.
3. The thumbs and fingers should be rolled from end to end, respectively. The hand should be rotated almost to 180o angle.
4. This process relieves strain on the body. It also leaves the fingers relaxed once they are rolled, so that they may be lifted easily from the card without danger of slipping, which can smudge and blur the prints.
5. The degree of pressure to be exerted in inking and taking rolled impressions is important, and this may be determined through experience and observation.

a. It is important that the subject be cautioned to relax and refrain from trying to help by exerting pressure.

b. This prevents the technician from gauging the amount of pressure needed.

6. Rolled impressions are taken individually.
    a. In taking rolled impressions, the side of the bulb of the finger is placed upon the inking plate, and the finger is rolled to the other side until it faces the opposite direction (i.e., fingernail to fingernail).
    b. Care should be exercised so the bulb of each finger is inked evenly from the tip to below the first joint.
    c. By pressing the finger lightly on the card and rolling in exactly the same manner, a clear rolled impression of the finger surface may be obtained.
    d. It is better to ink and print each finger separately, beginning with the right thumb and then, in order, the index, middle, ring, and little finger.
        - NOTE: Stamp pad ink, printing ink, ordinary writing ink, or other colored inks do not produce a suitable fingerprint, are too light, too thin, and do not dry quickly.

Unit 6 Identification, Collection, and Preservation of Evidence

Unit Goal: Identifying, collecting, and preserving crime scene evidence for examination/analysis.

6.1 Explain important considerations of identifying, marking, collecting, and preserving evidence during a search.

A. When collecting, marking, and packaging physical evidence, the following considerations should be made:
    i. The individual who will examine the evidence.
    ii. Collect the most transient to least transient items of evidence.
    iii. The evidence should be physically separated, so contamination does not occur.
    iv. The packaging should be property labeled and contents identified, to include; make, model, color, and serial number to prevent subsequent unnecessary handling of the item(s).
    v. Make sure that you adhere to department SOP on the collection and preservation of evidence.

B. Marking the evidence
    i. The following details should be included on the evidence label:
        1. Case number
        2. Item number (when numerous items are collected)
        3. Date and time of collection
        4. Name and description of articles

5. Location
6. Signature or initials of officer collecting the evidence

ii. Avoid conclusions in marking

1. Avoid the use of phrases, such as “Murder Weapon”. This is due to the possibility that such notations will complicate subsequent admissibility of evidence in court.

iii. Marking instruments

1. Specialized writing instruments, such as; permanent markers, wax pencils, welders marking chalk, tungsten carbide scribe
    a. Note: Placing a strip of transparent tape over the writing will keep the writing from rubbing off.

C. Proper chain of custody should be utilized to ensure a total accounting of the evidence.

i. This chain of custody is established by adhering to certain guidelines:

1. The number of persons handling evidence from the time that it is collected should be limited. If the evidence leaves the possession of an officer, they should record in the notes: to whom the evidence was given, the date and time, and the reason it was turned over.
2. Anyone who handles evidence should affix their name, personal identifier, and date to the package containing evidence.
3. A signed receipt should be obtained from the person accepting the evidence. In turn, the investigator should sign a receipt or log when the item is returned.
4. When a piece of evidence is turned in, the investigator should check their identification mark on it to ensure that it is the same item.

D. Packaging

i. The purpose of proper packaging is to prevent the following:

1. Breaking
2. Spoiling
3. Loss
4. Contamination (containers should be tight)

ii. Each different item should be packaged separately.

iii. Do not staple evidence packaging. Evidence packages should be sealed with tape in a manner to prevent loss or contamination.

E. Submit evidence, when appropriate, to a qualified laboratory.

6.2 Identify different classes of evidence.

INSTRUCTOR NOTE: This list is not all inclusive of all the different classes of evidence.

A. Soil
    i. Soil can be encountered on many different types of evidence. For example, it can be encountered adhering to the shoes of a victim/suspect.
        1. Even a very small amount of soil may be significant.
    ii. Dry soil to prevent mold growth.
    iii. If soil is present on clothing, submit the clothing.
    iv. Handle evidence with care to keep soil intact on evidence item. If soil is loosely adhered or loose, collect soil of interest into a separate container.
    v. Soil adhering to a plaster cast can be used if enough is present.
    vi. The exact locations from which exemplars are collected should be noted in a sketch.
    vii. Evidential and exemplar samples must be packaged separately.
    viii. Soil can be packaged in a metal tin/paint can, envelope with sealed corners, or other appropriate containers.
B. Liquids
    i. Often occurred in arson, alcohol, or drug related cases.
    ii. Relating to arson, drug, or alcohol related cases.
    iii. If liquid is not already in an airtight container, place in screw cap vial or other glass container with lid.
    iv. If absorbed into another material, the material should be placed into an airtight container (ex: clean, unused paint can with lid).
    v. Mark the suspected liquid on the container.
    vi. Beware of acids and caustics that are explosive, corrosive, and/or dangerous.
    vii. Flammable liquids and accelerants evaporate easily. Liquid evidence should be weighed for content in metric units.
    viii. Some liquids need to be refrigerated to prevent degradation or spoilage.
C. Firearms Evidence
    i. Firearms Safety
        1. Treat all firearms as though they are loaded.
        2. Keep your finger outside the trigger guard until you are on target and have decided to fire.
        3. Always point the muzzle in a safe direction
        4. Be sure of your target and what is beyond and around it.
    ii. General Handling of Firearms
        1. Gloves shall always be worn.

2. Prior to handling a firearm, note/document the position of the manual safety and/or hammer of the firearm; if possible (see documentation section below).
3. All firearms must be treated as they are loaded.
4. Keep fingers away from the muzzle area of the firearm.
5. Loaded firearms

INSTRUCTOR NOTE: Please follow department/agency policy regarding making firearms safe.

a. Semi/Full Auto Firearms:
   - Remove the magazine, if applicable.
   - Remove the unfired cartridge from the chamber(s)- if applicable
   - Visually and physically inspect the chamber(s) for an unfired cartridge or fired cartridge casing.
   - Secure firearm in safe position by inserting a zip tie in magazine well and through the ejection port. Do not insert a zip tie through the barrel of a firearm.
   - Note: if you choose to turn the manual safety (if applicable) in the "ON" position prior to submission, please document on packaging/notes the position of the safety when you first collected the firearm.

b. Revolvers:
   - Prior to opening the cylinder of the revolver, index the cylinder with a silver, black, red, blue, or green permanent marker. This is done by drawing a line on both sides of the top strap of the revolver to indicate which chamber was aligned with the barrel at the time the revolver was collected.
   - To make a revolver safe that is cocked, first try to open the cylinder. If you cannot, CAREFULLY lower the hammer by pulling the trigger slowly and with your finger controlling the movement of the hammer forward. Ensure the muzzle of firearm is in a safe direction.
   - If unfired cartridges and/or fired cartridge casings are present in the chamber(s) of the cylinder, give each chamber a unique identifier (i.e. 1, 2, 3, 4, 5, or A, B, C, D, E). Remove from chamber(s) and note which chamber the fired casing or unfired cartridge came from. This can be done via photography, notetaking, and/or sketching.
   - Secure revolver by inserting a zip tie through a chamber of the cylinder.
   - Note- some agencies require that a CSI or Firearms Examiner shall make the firearm safe and document the firearm; however, if you

cannot make a firearm safe inform a Firearms Examiner and/or Property Section and/Lab that the firearm is loaded (or possibly loaded-some firearms are rusted and you cannot open the action to look for an unfired cartridge).

6. Never stick anything down the barrel of a firearm to make it safe (such as a zip tie) or in attempt to dislodge debris (such as a pencil or tool). This could damage the individual characteristics within the barrel.
7. Do not attempt to dry fire, fire, clean, disassemble or reassemble a firearm when found.
8. Document the condition of the firearm and package all pieces together.
9. Package firearm in an envelope, evidence bag, or gun box and properly seal.
10. Magazines:
    a. Package in a container with parent firearm; if loaded:
        - Unload and package unfired cartridges together and then put package with magazine. Document the caliber and brand of ammunition.
        - Keep magazine loaded.
        - Do not unload magazine to document unfired cartridges and then reload magazine to submit to Property/Lab.

iii. Documentation utilizing photography and/or note taking

1. Physical appearance of the firearm before it is moved
2. The position of the slide/bolt or cylinder
3. The exposed hammer position (is firearm cocked?)
4. The manual safety position (Safe or fire position)
5. Is the firearm loaded?
    a. If so, and you are directed to unload the firearm; package the unfired cartridge from the chamber separate from other unfired cartridges found in the magazine or on scene and label cartridge (packaging) as being found in the chamber of firearm.
6. Is trace evidence present?
    a. Anything that does not belong on a firearm, such as red brown stains (possible blood), hair, dirt/debris, etc.
    b. If yes, document with photography, note taking, and/or sketches and collect trace in a separate package and seal. Document the location of the trace evidence (if applicable).
    c. Note- some agencies require that a CSI or Firearms Examiner to collect the trace evidence on a firearm.

iv. Firearms Found in Water

1. If a firearm is found in water, document the location of the firearm itself prior to handling firearm via photography, note taking, and/or sketches.
2. Do not dislodge any dirt/debris that is present in the barrel of the firearm.
3. Collect the same water that the firearm was found in and place the water into a seal proof container.
4. Photograph the firearm immediately when recovering from water.
5. Completely submerge the firearm in water and package in a leak-proof container. *Rust will occur at a faster rater the more time a firearm is not submerged in the water it was found in.
6. Note: if you cannot make a firearm safe inform a Firearms Examiner and/or Property Section and/Lab that the firearm is loaded (or possibly loaded-some firearms are rusted and you cannot open the action to look for an unfired cartridge).

v. Collect trace evidence, place in/on an appropriate container such as a screw top container, paper fold, or sticky note.

vi. Process weapon for latent prints (if necessary)

vii. Marking of Firearms
1. Do not mark the firearm; exception revolvers.
2. Mark the package that the firearm is sealed in or fill out an evidence tag and attach to the trigger guard of the firearm.

viii. Recovery of Firearms Evidence (fired bullets, cartridge casings, wads, and pellets)
1. Gloves shall always be worn.
2. Document via photography, note taking, and/or sketches of the location of the recovered firearms evidence prior to handling.
3. Collect each item of evidence and depending on location or if biohazard material is present, the items (i.e. bullets, casings, pellets, etc.) can be packaged together or in separate envelopes with information of the recovery documented on packaging. If multiple items of firearms evidence are collected in small envelopes, place all envelopes in one large envelope, seal, and label envelope with applicable information regarding crime and evidence.
4. Dislodging projectiles:
    a. Document via photography, note taking, and/or sketches of the location of the recovered firearms evidence prior to handling.
    b. Carefully remove the projectile from the site of impact as to not damage the individual markings on the projectile. Do not use a tool to pry or scrape the bullet out.

- If the projectile is embedded in a wood or plaster material, cut around the projectile until it falls free.
- Collect material surrounding projectile as trace evidence, package, label, and seal appropriately.
- If the projectile cannot be dislodged easily a portion of the site of impact may be submitted to the Property/Laboratory as a whole. Allowing the forensic scientists to dislodge the projectile

ix. Tools and Tool Mark Evidence

1. Gloves shall always be worn.
2. Document via photography, note taking, and/or sketches.
    a. Physical appearance and characteristics of tool or tool mark evidence (i.e. screwdriver and padlock) prior to handling tool or tool mark evidence.
3. Is trace evidence present?
    a. Anything that does not belong on a tool, such as red brown stains (possible blood), hair, dirt/debris, etc.
    b. If yes, collect trace in a separate package, seal, and document where it came from (if applicable).
4. Do not mark tool or tool mark evidence (see exceptions below)
5. Package tool and tool mark evidence separately. Package multiple tools separately.

D. Tool Mark Evidence:

i. If collecting the evidence requires that the item be cut or damaged to remove the tool mark (i.e. wires), when making cuts, DO NOT use suspect tool(s).

ii. Mark the side of the item that you made the cut on.

iii. Some tool mark evidence is too large to collect (i.e. a door or window frame), if so, cast the tool mark(s) and submit casts to Property/Laboratory.

iv. Note: Consult a Firearms Examiner/Laboratory that performs Tool Mark Examinations prior to collecting tools and tool marks.

E. Glass evidence

i. Glass fragments can result from many circumstances. Example: a bullet can shatter glass by passing through it, or glass purposely broken will leave behind fragments in the crime scene and on the perpetrator. When collected, glass could be used to:

1. Show the direction of travel of a projectile.
2. Show the sequence of impact of a projectile.
3. Compare to other broken glass.

ii. Collection and preservation of glass evidence:

1. Carefully collect and package all glass
2. If glass remains in the window frame, mark the glass with the words, "outside" or "inside," before removing. The purpose of doing this is so that the fracture pattern may be utilized to determine the direction from which the breaking force was applied.
3. Latent impressions lifted from the window glass should have a notation as to which side the latent was found.
4. Exemplar glass should be properly marked and photographed before it is removed. Samples of glass should be taken preferably from all four corners in the window frame rather than possibly contaminated glass on the ground. The purpose for this is to discern if the physical properties of the questioned glass are within the range of the physical properties of the exemplar.
5. Glass on the ground should be carefully examined for latent and shoe prints.
6. The clothing of a suspect should be carefully handled to prevent the loss of evidence. Dry clothing if wet. Clothing is best wrapped in paper to avoid the loss of trace evidence and then packaged in new paper bags.
7. The clothing of suspects should never be included in the same container with exemplar glass, suspected tools, or other trace evidence.
8. Large pieces of glass should be packaged carefully to avoid breakage, shifting and chipping. Properly mark containers in order to prevent them from being cut.

F. Paint evidence

i. Collection and preservation of paint evidence:

1. If paint cannot be removed without alteration, and if practical, submit the item bearing the questioned paint.
2. Collect samples with a clean-bladed instrument and include all paint layers.
   a. Afterwards, throw blade away or retain as evidence.
3. Obtain paint samples from all damaged areas on a vehicle because of composition, thickness and/or order of layers frequently vary at different locations.
4. Attempt to collect samples down to the metal or plastic substrate in at least 1/2” x 1/2” sample size.
5. Smeared paint, particularly metallic automotive paints, may appear quite different from original paint.
6. Document the location where an individual paint sample was removed.
7. Paint fragments may be mixed with other debris. This debris may be collected by picking, sweeping, or vacuuming into a container that will not permit any loss.

8. Victim and/or suspect clothing should be submitted to the laboratory for examination. Small paint chips can be recovered from the weave of the fabric.
9. Do not use tape lifts to collected paint evidence. The adhesive can interfere with the chemical analysis of the paint.
10. Do not use plastic bags when packaging paint evidence. Static electricity strongly holds the chips, making their removal intact very difficult.
11. When packaging, use a paper fold, evidence tin, or other secure packaging method.
12. If using letter envelopes, seal corners prior to use to prevent loss.

G. When removing clothing from a person:
   i. A person's clothing should be collected in the following manner:
      1. When feasible, have person stand on a large sheet of paper while removing clothing
      2. Allow clothing to dry, if wet.
      3. Do not attempt to remove evidence from the clothing. The location of the evidence on the clothing may be important.
      4. Package clothing items in separate paper bags.
      5. After all articles of clothing are collected, carefully fold the paper the person was standing upon so as not to lose any trace evidence. Collect paper as evidentiary item.

H. Seized drugs/Controlled substances
   i. Suspected drug evidence can be encountered in a variety of forms:
      1. Solids such as powder cocaine, crack cocaine, crystal methamphetamine, tar heroin, marihuana plant material, and tablets/capsules.
      2. Liquids such as codeine cough syrup, PCP liquid, inhalant paint thinner, acids/bases used in clandestine labs.
      3. Gases are less frequently encountered but may be identified at clandestine labs or when being used as an inhalant (nitrous oxide).
   ii. Potential hazards exist from exposure to suspected drug evidence
      1. Effects from direct contact/ingestion/inhalation of the drugs themselves (fentanyl, cocaine, PCP, etc.).
      2. Inhalation/ingestion of vapors causing dizziness, nausea, asphyxiation.
      3. Inhalation of mold from marihuana or wet items.
      4. Chemical burns from acids/bases.
      5. Biohazards from body fluids present on evidence.

iii. When collecting suspected drug evidence appropriate personal protective equipment should be worn including gloves and masks when there is a possibility of substances becoming air borne and inhaled.

iv. Proper packaging is critical to ensure that evidence is not lost, contaminated, or changed in any way.

1. Drug evidence from different sources (persons, locations) should be packaged separately so that its source can be identified later.

2. Evidence should generally be left in its original packaging when possible to minimize the risk of exposure and should be placed into additional suitable packaging for collection, transfer, and storage.

a. Dry solids including plant material can usually be packaged in plastic zippered bags or heat-sealed bags.

b. Wet evidence should be dried if possible. If this is not possible it should be placed into leak proof containers.

c. Fresh plants should be placed in paper or other material such as burlap sacks that can allow for drying while in storage and minimize the potential for mold growth. If this is not possible, then the container should be labeled with the identity of the contents.

d. Liquids should be placed into sealable plastic bottles making sure not to overfill the bottle to allow room for expansion.

e. Glass containers should be avoided due to the risk of breakage. If glass is used it should be placed inside of a zipper bag or box and packaged to avoid breakage.

f. Puncture resistant containers should be used for sharps such as syringes, knives, razor blades, or broken glass.

3. Leaving drug evidence in its original packaging also helps preserve the packaging for possible latent prints or DNA testing.

v. The weight of drug evidence is often critical to the filing of charges. However, to preserve the evidence and minimize the risk of exposure, substances should be left in their packaging if weighed and all weights should be noted as including packaging. Alternatively, packaging weights can be estimated and subtracted from total weights, but this should also be noted.

I. Biological Stains

INSTRUCTOR NOTE: For safety precautions, see Appendix A: Crime Scene Safety for DNA evidence.

i. Blood

1. Bloodstain(s) and bloodstain patterns can provide investigator(s) with valuable information

2. Investigators should remember that not all bloodstains found at a crime scene belongs to the victim.
3. Indeed, a bloodstain may belong to the perpetrator, who might have been injured while committing the crime.
4. In any case, it is usually a good idea to adhere to the following guidelines when considering the collection of blood:
    a. Good photos (taken at 90 degrees with a scale included) and videos should be taken of bloodstains and bloodstain patterns.
    b. Samples should be taken from all bloodstain patterns and isolated stains
    c. Ensure swabs are air-dried prior to packaging to prevent degradation

ii. Semen

1. Approximately 2 to 5 ml. of seminal fluid is released during ejaculation.
2. Acid Phosphatase is an enzyme that can catalyze the hydrolysis of certain organic phosphates.
    a. Seminal Acid Phosphatase (AP) is found in human semen in uniquely high levels (400 times greater) compared with other body fluids and plant tissues.
    b. No variation has been found between males with normal sperm count and those that are infertile or have had vasectomies.
    c. Utilizing an alternate light source (ALS) at 455nm and an orange barrier filter is optimal for visualizing seminal florescence.
    d. AP Spot is a presumptive test that is suitable for testing seminal stains.
3. Saliva and urine.

J. Prints and impressions

i. Print and impression evidence should be regarded as fragile and must be protected.

ii. Examples of impression evidence include:

1. Tool marks (usually found on metal doors or window frames and on locked metal desks, cabinets, and safes).
2. Tire impressions.
3. Foot impressions.

iii. Prints, such as latent prints and shoe prints, should be protected against smearing, weathering, and all types of mechanical damage.

iv. Heat may destroy some prints.

v. For this reason, access to the scene should be limited to a few persons who are directly involved with the collection of evidence.

K. Hair and fibers

i. This type of evidence can be easily lost. For example, blown by wind, movement by people, or transfer by contact.

ii. It may be necessary to close all doors/windows to keep things from being blown away. (Make note of all open doors and/or windows.)

iii. The best way to avoid any of these occurrences is to restrict access to the scene until the investigation of the scene is complete.

iv. This evidence should be prioritized by collection.

6.3 Explain universal precautions.

A. HBV and HIV can be transmitted in similar ways, but hepatitis B is more infectious.

i. Both are passed on by contact with body fluids which contain the virus such as blood, semen and vaginal fluid, or from a mother to her baby during pregnancy or delivery.

B. Universal precautions should be taken to avoid contracting infectious diseases at a crime scene.

i. All blood and body fluids should be treated as potentially infectious.

ii. Disposable gloves (latex or nitrile) should be worn when there is potential for contact with body fluids.

iii. After completing crime scene processing, remove gloves and wash hands thoroughly with anti-bacterial soap and water.

iv. Hands or other exposed skin surfaces should be washed thoroughly and immediately after accidental contamination with blood or body fluids.

v. In the case of an accidental wound, immediately clean wound and seek medical attention.

vi. Avoid being punctured by soiled needles, knives, razors, or other sharp instruments.

1. Do not attempt to re-sheath needles.
2. Use caution when searching clothing in case needles are present.
3. Place sharp objects in puncture proof containers.

vii. Spills of blood or other potentially contaminated body fluids should be flooded with liquid germicide before cleaning and then decontaminated with a fresh germicidal chemical, such as any of the following:

1. Diluted household bleach - 1:10.
2. Lysol.

viii. If cardiopulmonary resuscitation (CPR) is necessary, mouthpieces/shields and ventilation devices should be worn.

ix. Evidence stained with blood or body fluids should be handled with disposable gloves (latex or nitrile) and placed in properly labeled paper bags.

1. Wet evidence must be dried prior to packaging to avoid leakage to other pieces of evidence.
2. Transport evidence to the laboratory as soon as practicable.

x. Do not scrape dried bloodstains. This can cause blood flakes to be inhaled or become lodged in the eye.

xi. Even after evidence has been properly dried, it is still considered infectious. Place biohazard stickers on the outside of each evidence container.

6.4 List safety precautions, safe work practices, and personal protective equipment (PPE) recommended for personnel processing crime scenes in hazardous environments.

INSTRUCTOR NOTE: For more detailed information on this subject area, refer to Appendix A: Crime Scene Safety.

A. Routes of exposure
   i. Inhalation
   ii. Skin contact
   iii. Ingestion
   iv. Injection

B. Safety
   i. Bloodborne pathogen safety
   ii. Chemical safety
   iii. Confined space safety

C. Personal protective equipment
   i. Hand protection
   ii. Eye protection
   iii. Foot protection
   iv. Respiratory protection
   v. Head protection

D. Hazardous materials transportation
   i. Code of Federal Regulations Title 49, Transportation.
      1. Subtitle B, Chapter I, Subchapter A: Hazardous Materials and Oil Transportation

6.5 Identify special storage needs for certain types of evidence.

A. Blood
   i. Liquid blood must be refrigerated.
   ii. Dried blood must be stored in paper, not plastic, and away from moisture.

B. Explosives

i. Follow department policy and SOP

ii. Maintain a safe distance and evacuate the premises

INSTRUCTOR NOTE: Consult ATF website for safe distances: https://www.atf.gov/explosives/table-distances

iii. Have dispatch notify an appropriate agency (i.e. Fire Marshal's Office, Bomb Squad (DPS), EOD team, ATF, etc.)

C. Tools

i. Protect the working surfaces from the following:

1. Mechanical damage.

2. Rust and corrosion.

6.6 Identify methods of preserving evidence during foul weather.

A. Preservation of physical evidence during foul weather.

i. Photograph any evidence threatened by foul weather first

ii. Try to protect shoe and tire impressions from rain, dew, snow, and hail by covering with boxes, plastic, or anything available.

iii. Collect the evidence that will suffer the most loss.

6.7 Demonstrate methods of identifying, collecting, marking, and preserving crime scene evidence.

Unit 7 DNA Evidence

Unit Goal: Collecting and preserving potential DNA evidence.

INSTRUCTOR NOTE: Ensure to follow agency policy, protocol, and current laws surrounding collection and preservation of DNA evidence.

7.1 Describe the basic methods of serology and DNA testing.

A. Serology– process of testing in the laboratory that assists the DNA analyst in determining what type of biological fluid is present on the evidence.

B. DNA testing – the process of developing a DNA profile from an evidentiary stain and performing a comparison to known sample to determine if the individual could be a possible contributor to the evidentiary stain.

7.2 Describe important considerations of DNA evaluations.

A. DNA is analyzed from cells found within the human body, including those found in body fluids, biological stains, etc.

B. The results of DNA analysis of questioned biological samples are compared with the results of known samples.

i. DNA analysis of known samples is an examination that may associate victims(s) and/or suspect(s) with each other or with a crime scene.

C. Examinations may determine the following:

i. Presence of potential biological fluids (e.g. blood, semen, saliva, or sweat)

ii. If DNA extracted is human or higher primate.

iii. If an individual is included or excluded as a potential contributor.

D. DNA analysis cannot determine the age or the race of a person.

7.3 Explain the importance of maintaining a "chain of custody" when collecting and preserving potential DNA evidence.

A. The key point is to keep a detailed list of individuals and locations where the evidence was in the possession of or stored, from collection to final disposition.

B. It is imperative that the investigator and the agency treat all investigations with the mindset that every action taken during the search may one day be under the scrutiny of a jury.

C. Start maintaining a chain of custody of potential evidence as soon as an item is collected.

D. Create evidence tags for each piece of evidence that is identified and collected:

i. Time and date of collection

ii. Unique agency case number

iii. Unique item number

iv. The owner of the evidence before it was seized, or who provided the information.

v. A complete description of the evidence, including the quantity.

vi. Name of individual, and crime laboratory or storage facility, who received the evidence from the investigator and the signature of the recipient.

vii. Date of transfer.

E. Each time the evidence exchanges possession from one person to another, or moves from one location to another, the investigator must record this transaction.

F. It is critical to record all pertinent information possible and maintain the chain of custody.

G. Ensure that you are following department policy, protocol, and current laws.

7.4 Identify the methods of collecting known samples.

A. Only qualified medical personnel should collect blood samples from an individual.

B. Known blood samples need to be collected in purple–top tubes with EDTA as an anticoagulant for DNA analysis and drug or alcohol-testing samples in gray-top tubes with NaF (sodium fluoride).

C. Each tube should be identified with the date, time, subject's name, location, collector's name, case number, and evidence number.

D. Refrigerate, do not freeze blood samples.

i. Use cold packs, not dry ice during shipping. Ensure the outer container is labeled appropriately ex: biohazard, refrigerate upon arrival.

E. Submit blood samples to a crime laboratory as soon as possible.

F. Buccal swabs can also be collected as a known DNA sample and are preferred over blood samples.

i. Use sterile cotton swabs to collect known saliva samples.

ii. Rub the inside surfaces of the cheeks and gums thoroughly.

iii. Air dry the swabs and place in a clean envelope with sealed corners.

iv. Do not use plastic containers.

v. Identify each sample with the date, time, subject's name, location, collector's name, case number, and evidence number.

vi. Samples do not need to be refrigerated.

7.5 Identify the methods of collecting different types of blood samples.

A. Liquid blood collection

i. Absorb suspected liquid blood onto a sterile cotton swab.

ii. Air-dry swab and pack in clean envelope with sealed corners.

iii. Do not use plastic containers.

B. Dried blood collection

i. Absorb suspected dried blood onto a sterile cotton swab moistened with sterile distilled water.

ii. Air-dry swab and pack in clean envelope with sealed corners.

iii. Do not store in plastic containers.

C. Bloodstains on garments or other items that are easily collected.

i. Air-dry wet bloodstained garments in a protected, secure area.

ii. Wrap dried bloodstained garments in clean paper or package directly into properly labeled brown paper bags.

iii. Do not place wet or dried garments in plastic or airtight containers.

iv. Place all debris or residue that has fallen off the garments in clean paper or a white envelope with sealed corners.

v. Air-dry small suspected wet bloodstained objects and submit the objects to a crime laboratory.

1. Preserve bloodstain patterns

2. Avoid creating additional stain patterns during drying and packaging.

3. Pack to prevent stain removal by abrasive action or packing materials during shipping.

4. Pack in clean envelope with sealed corners.

5. Do not store in plastic containers.

vi. When possible, cut a large sample of suspected bloodstains from immovable objects with a clean sharp instrument.
    1. Pack to prevent stain removal by abrasive action or packaging materials during shipping.
    2. Pack in clean paper.
    3. Do not store in plastic containers.

vii. Absorb suspected dried bloodstains on immovable objects onto a sterile cotton swab moistened with sterile distilled water.
    1. Air-dry the swab and pack in clean envelope with sealed corners.
    2. Do not store in plastic containers.

7.6 Identify the methods of collecting evidentiary saliva samples. All samples should be submitted to a crime laboratory as soon as practicable.

A. Cigarette butts
    i. Pick up cigarette butts with gloved hands or clean forceps. Do not submit ashes.
    ii. Air dry and place the cigarette butts from the same location (ashtray) in an envelope with sealed corners.
    iii. Do not submit the ashtray unless latent print examination is requested.
    iv. Package the ashtray separately if collected.
    v. Do not use plastic containers.

B. Chewing gum
    i. Pick up chewing gum with gloved hands or clean forceps.
    ii. Air dry and place in glassine paper and pack in clean envelope with sealed corners.
    iii. Do not use plastic containers.

C. Envelopes and stamps
    i. Pick up envelopes and stamps with gloved hands or clean forceps and pack in clean envelope with sealed corners
    ii. Do not use plastic containers.

D. Liquid saliva
    i. Liquid saliva
        1. Absorb suspected liquid saliva onto a sterile cotton swab.
        2. Air-dry the swab and pack in clean envelope with sealed corners.
        3. Do not use plastic containers.
    ii. Dry saliva-stained objects

1. Pack to prevent stain removal by abrasive action or packaging materials during shipping.
2. Pack in clean envelope with sealed corners.
3. Do not use plastic containers.

iii. Saliva stains from immovable objects

1. When possible, cut a large sample of suspected saliva stains from immovable objects with a clean sharp instrument.
2. Pack to prevent stain removal by abrasive action or packaging materials during shipping.
3. Pack in clean envelope with sealed corners.
4. Do not use plastic containers.

7.7 Identify the methods of collecting different samples of semen stains.

A. Liquid semen

i. Absorb suspected liquid semen onto a clean cotton cloth or swab.

ii. Leave a portion of the cloth or swab unstained as a control.

iii. Air-dry the cloth or swab and pack in clean paper or an envelope with sealed corners.

iv. Do not use plastic containers.

B. Dry semen-stained objects

i. Submit small suspected dry semen-stained objects to a crime laboratory.

ii. Pack to prevent stain removal by abrasive action or packaging materials during shipping.

iii. Pack in clean paper.

iv. Do not use plastic containers.

C. Semen stains from immovable object.

i. When possible, cut a large sample of suspected semen stains from immovable objects with a clean sharp instrument.

ii. Collect an unstained control sample.

iii. Pack to prevent stain removal by abrasive action or packaging materials during shipping.

iv. Pack in clean paper.

v. Do not use plastic containers.

D. Dried semen stains on immovable object

i. Absorb suspected dried semen stains on immovable objects onto a clean cotton cloth or swab moistened with distilled water.

ii. Leave a portion of the cloth or swab or cloth and place in clean paper or envelope with sealed corners.

iii. Do not use plastic containers.

E. Seminal evidence from sexual assault victim(s)

i. If a sexual assault victim receives a medical forensic exam, a medical provider will obtain seminal evidence from the victim, including the victim's underwear, and include it in a sexual assault evidence collection kit (SAEK).

ii. The SAEK will either be given to law enforcement after the exam or the medical facility will maintain custody of the SAEK until law enforcement collects it.

iii. If the SAEK contains fluids or wet items, refrigerate it. Otherwise, the SAEK does not need to be refrigerated.

iv. Submit the SAEK to a crime laboratory as soon as possible; by state law, you must submit it within 30 days.

1. Government Code, Sec. 420.042: Analysis of Evidence

7.8 Identify the methods of collecting hair samples.

A. Known hair samples:

i. Thorough random samples should be taken from the head and pubic regions of individuals involved in the incident if hair comparisons are required.

ii. Twenty-five full-length hairs, pulled and combed from different areas of the head and pubic regions, are generally considered an adequate representation of an individual's hair characteristics.

iii. Ensure that hairs from victim and suspect are packaged separately. Pubic and head hair exemplars should also be packaged separately.

B. Hairs in the hand of the victims:

i. Pack collected hairs in clean envelope with sealed corners.

ii. Submit these to a crime laboratory for analysis.

C. Pubic and head combings:

i. Pubic and head hair combings should always be taken in sexual assault cases and will normally be collected by the investigating agency.

ii. Foreign hairs as well as fibers can be recovered from these samples.

D. Pick up hair carefully with clean forceps to prevent damaging the root tissue.

E. Package each group of hair separately in a clean envelope with sealed corners.

F. Do not use plastic containers.

7.9 Identify the methods of collecting tissue, bone, and teeth samples.

A. Tissue, bone, and teeth samples

i. Pick up suspected tissues, bones, and teeth with gloved hands or clean forceps.

ii. Place tissue samples in a clean, airtight plastic container. Store frozen until shipment to a crime laboratory.

iii. Place teeth and bone samples in clean paper or an envelope with sealed corners.

iv. Freeze the evidence, place in expanded polystyrene foam containers (i.e. Styrofoam containers), and ship overnight on dry ice.

7.10 Identify the methods of collecting DNA evidence from hats, shoes, sock, fingernails, weapons, and doors and windows.

A. Hats

i. Package all hats in separate paper bags. Collect wearing clean disposable gloves.

ii. Use care when collecting baseball-style caps with adjustable plastic headbands as the bands are a possible source of fingerprints.

B. Shoes

i. Package pairs of shoes in separate paper bags from other pairs of shoes.

ii. If wet blood is present, air dry the shoes prior to packaging.

iii. Shoes may be a good source of fiber evidence, bloodstains, and are utilized for shoe print comparisons.

iv. Shoes worn by a suspect can deposit fibers from a vehicle they exited at a crime scene and can also pick up fibers from the scene and then deposit them in another location.

C. Socks

i. Socks worn by a homicide victim may provide fiber and hair evidence. For example, if the victim is transported by vehicle, contact with the interior surfaces of a vehicle can cause hairs and fibers to collect on the socks.

ii. It may be necessary to obtain elimination samples of carpeting of the victim's car or residence to avoid the possibility of coincidental match.

iii. Package socks in paper bags.

iv. If wet blood is present, air dry the socks prior to packaging.

D. Fingernails

i. Fingernails will be scraped/clipped by the medical examiner's office on deceased victims.

ii. Use care when scraping or clipping the fingernails of a live victim or suspect. Utilize sterile fingernail scrapers and collect the scrapings in clean white paper, fold the paper a place it in a properly labeled clean envelope.

iii. Be aware that DNA on the hands or tools of the medical personnel may contaminate the evidence and influence the DNA results.

E. Weapons

i. Weapons recovered at a crime scene should always be searched for DNA before processing for fingerprints.

F. Doors and Windows

i. Doors and windows should be searched for DNA and trace evidence if they are possible points of entry or exit.

7.11 Explain important considerations of documenting, collecting, packaging, and preserving DNA evidence.

A. If DNA evidence is not properly documented, collected, packaged, and preserved, it will not meet the legal and scientific requirements for admissibility in a court of law.

B. If DNA evidence is not properly documented, origin of the item may be questioned.

C. If DNA evidence is not properly collected, the ability to obtain DNA results may be compromised.

D. If DNA evidence is not properly preserved, degradation may occur which means the ability to obtain DNA results may be compromised.

E. If evidence retains its original integrity once it reaches a laboratory, there is greater possibility of obtaining useful examinations results.

F. Follow department policy for document, collecting, packaging, and preserving all types of evidence.

7.12 Know where to submit DNA evidence.

A. Submit DNA evidence to a local law enforcement crime laboratory, state crime laboratory, private DNA laboratory or the FBI Crime Laboratory.

B. Always refer to department policy before submitting evidence.

C. Contact local crime laboratory to determine appropriate submission policies.

7.13 Demonstrate the process of collecting and preserving DNA evidence.

Unit 8 Computer and Other Electronic Evidence

Unit Goal: Identifying, documenting, securing, and processing potential computer and other electronic evidence.

8.1 List a basic guideline for identifying potential computer and/or other electronic evidence.

A. Search, locate, and clearly identify potential evidence.

B. The first responder should visually identify the potential evidence, both conventional (physical) and electronic.

C. Determine if perishable evidence (data that can be lost or deleted) exists.

D. Evaluate the scene and formulate a search plan.

E. If necessary, contact a person who specializes in information technology, specifically computer forensics.

i. Specialized knowledge is required to avoid damaging evidence while performing even such simple tasks as starting up the electronic device or opening a file or directory to inspect the contents.

ii. Different tools and techniques are required for different operating systems and different software computer products. For instance, some e-mail systems save messages in a simple textual format that can be readily searched using keyword searches. Other e-mail products save messages in a compressed format to save disk space.

iii. The investigator must know when to use normal keyword searches, when to use the e-mail system itself, or when to use specialized utilities to examine message contents.

F. Follow department policy and protocol.

8.2 Identify a basic guideline for conducting preliminary interviews.

A. Separate and identify all persons (witnesses, subjects, or others) at the scene and record their location at the time of entry.

B. Referring to your department policy and current Texas law, obtain the following information:

i. Owners and/or users of electronic devices found at the scene, as well as passwords, usernames, and Internet service provider.

ii. Any passwords required accessing the system, software, or data. (Example: multiple passwords, e.g., BIOS, system login, network or ISP, application files, encryption pass phrase, e-mail, access, token, scheduler, or contact list.)

iii. Purpose of the system

1. Standalone CPU
2. Terminal on a network

iv. Any offsite data storage (i.e. Cloud Storage)

v. Any other important information pertaining to the hardware, software, and/or actual device.

8.3 Explain the importance of maintaining a "chain of custody" when securing and processing all electronic date and evidence.

A. The key point is to keep a detailed list of individuals who had control of the evidence at any point, from collection to final disposition.

B. It is in the best interest of the investigator and the agency to treat all investigations with the mindset that every action taken during the search may one day be under the scrutiny of individuals who desire to discredit techniques used, the officer's testimony, and basic fact-finding skills used.

C. Start maintaining a chain of custody of potential evidence early in the response process.

D. Create evidence tags for each hard drive or media identified and seized:

i. Time and date of the action.
ii. Number assigned to the case.
iii. Number of particular evidence tag.
iv. Whether or not consent is required and the signature of the person who owns the information being seized.
v. The owner of the evidence before it was seized, or who provided the information.
vi. A complete description of the evidence, including the quantity, if necessary.
vii. Name of individual, crime laboratory, and/or storage facility who received the evidence from the investigator, and the signature of the recipient.
viii. Date of transfer
ix. Reason the evidence was given to another person.

E. Each time the evidence exchanges possession from one person to another, or moves from one location to another, the investigator must record this transaction. For instance, if the officer moves the initial forensic duplication from a hard drive to many CD-ROMS, the officer must record this transfer.

F. It is also important to document information about the items that are being seized. For instance, if the investigator decides to make forensic duplications of several mail servers located in a single office, document the following information:
i. Individuals who occupy the office.
ii. Names of employees that may have access to the office and their email addresses.
iii. Location of the computer systems in the room.
iv. State of systems (whether it is powered on, and what is visible on the screen)
v. Network connects or modem connections
vi. Individuals present at the time the forensic duplication was performed.
vii. Serial numbers, models, and makes of the hard drives and the components of the system.
viii. Peripherals attached to the system

G. It is critical to record all pertinent information possible and maintain the chain of custody.

H. A well document evidence tag only takes a few minutes to create.

I. Follow department policy and protocol.

8.4 Identify the methods for documenting computer and other electronic evidence.

A. The scene should be documented in detail.

B. Initial documentation of the physical scene:

i. Observe and document the physical scene, such as the position of the mouse and the location of components relative to each other (e.g., a mouse on the left side of the computer may indicate a left-handed user).

ii. Document the condition and location of the computer system or other electronic device, including its power status (on, off, or in sleep mode).

iii. Most electronic devices have status lights that indicate that it is on.

iv. If fan noise is heard on a computer, the system is probably on.

v. If the device (especially a computer system) is warm, this may also indicate that it is on or was recently turned off.

vi. Identify/document related electronic components that will not be collected.

vii. Photograph the entire scene to create a visual record as noted by the first responder. The complete room should be recorded with 360 degrees of coverage, when possible.

1. Include notes around CPU and under the keyboard.

viii. Photograph the front of the computer as well as the monitor screen and other components. This applies to other electronic devices that are seized.

1. If the mouse is moved and the screen wakes, take a photo of the screen to show what is active.

ix. Take written notes on what appears on the monitor screen, or screen of any other electronic device.

x. Active programs may require videotaping or more extensive documentation of monitor screen activity.

xi. Additional documentation of the system will be required during the collection phase.

8.5 Identify the methods for securing and processing computer and other electronic evidence.

A. Evaluating the scene.

i. Follow department policy and protocol for securing the crime scene.

1. This would include ensuring that all persons are removed from the immediate area from which evidence is to be collected.

2. At this point in the investigation do not alter the condition of any electronic devices:

3. Protect perishable data physically and electronically.

4. Perishable data may be found on pagers, caller ID boxes, electronic organizers (PDAs), cell phones, and other similar devices, as well as other electronic devices.

5. The first responder should always keep in mind that any device containing perishable data should be immediately secured, documented, and/or photographed.

ii. Identify telephone lines attached to electronic devices, such as caller ID boxes.
    1. Document, disconnect, and label each telephone line from the wall rather than the device, when possible.
    2. There may also be other communication lines present for LAN/Ethernet connections.
    3. Consult appropriate personnel/agency in these cases.

iii. Latent fingerprints.
    1. Keyboards, computer mouse, diskettes, CDs, or other components may have latent fingerprints or other physical evidence that should be preserved.
    2. Chemicals used in processing latent prints can damage equipment and data.
    3. Therefore, latent prints should be collected after electronic evidence recovery is complete.

B. Collecting electronic evidence.
    i. Should be collected according to departmental policy and protocol.
    ii. In the absence of departmental guidelines outlining procedures for collecting electronic evidence, the following methods are suggested.
        1. Prior to the collection of evidence, it is assumed that locating and documenting has been done as described above.
        2. Recognize that other types of evidence such as trace, biological, or latent prints may exist.
        3. Destructive techniques (e.g., use of fingerprint processing chemicals) should be postponed until after electronic evidence recovery is done.
    iii. Making back-up copies of information stored in computers reduces the possibility that evidence will be altered of destroyed.

C. Non-electronic evidence.
    i. Recovery of non-electronic evidence can be crucial in the investigation of electronic crime.
    ii. Proper care should be taken to ensure that such evidence is recovered and preserved.
    iii. Items relevant to subsequent examination of electronic evidence may exist in other forms (e.g., written passwords and other handwritten notes, blank pads of paper with indented writing, hardware and software manuals, calendars, literature, text or graphical computer printouts and photographs) and should be secured and preserved for future analysis.
    iv. These items frequently are near the computer or related hardware items.

1. Areas under the keyboard or attached to the monitor “the lion’s mane”

v. All evidence should be identified, secured, and preserved in compliance with departmental policies.

D. Stand-alone and laptop computer evidence.

CAUTION: Multiple computers may indicate a computer network. Likewise, computers located at businesses are often networked. In these situations, specialized knowledge about the system is required to effectively recover evidence and reduce your potential for civil liability. When a computer network is encountered, contact the forensic computer expert in your department or outside consultant identified by your department for assistance.

i. A “stand-alone” personal computer is a computer not connected to a network or other computer. Stand-alones may consist of desktop machines or laptops.

ii. Laptops incorporate a computer, monitor, keyboard, and mouse into a single portable unit. Laptops differ from other computers in that they can be powered by electricity or a battery source. Therefore, they require the removal of the battery prior to stand-alone power-down procedures.

iii. If the computer is on, document existing conditions and call your expert or consultant.

iv. If an expert or consultant is not available, and after securing the scene, review all steps below before taking any action (otherwise, evidentiary data may be altered).

1. Record in notes all actions you take and any changes that you observe in the monitor, computer, printer, or other peripherals that result from your actions.

2. Observe the monitor and determine if it is on, off, or in sleep mode (blank screen). Then decide which of the following situations applies and follow the steps for that situation.

a. Situation 1: Monitor is on and work product and/or desktop are visible. Photograph screen and record information displayed.

b. Situation 2: Monitor is on, and screen is blank (sleep mode) or screen saver (picture) is visible. Move the mouse slightly (without pushing buttons). The screen should change and show work product or request a password. If the mouse movement does not cause a change in the screen, DO NOT perform any other keystrokes or mouse operations. Photograph the screen and record the information displayed.

c. Situation 3: Monitor is off. Make a note of “off” status. Turn the monitor on, then determine if the monitor status is as described in either situation 1 or 2 above and follow those steps.

v. Regardless of the power state of the computer (on, off, or sleep mode), remove the power source cable from the computer – NOT from the wall outlet. If

dealing with a laptop, remove the battery pack first before removing the power cord. The battery is removed to prevent any power to the system. Some laptops have a second battery in the multipurpose bay instead of a floppy drive or CD drive. Check for this possibility and remove that battery as well.

vi. Check for outside connectivity (e.g., telephone modem, cable, ISDN, DSL). If a telephone connection is present, attempt to identify the telephone number.

vii. To avoid damage to potential evidence, remove any floppy disks that are present, package the disk separately, and label the package. Do NOT remove CDs or touch the CD drive.

viii. Place tape over all the drive slots and over the power connector.

ix. Record make, model, and serial numbers.

x. Photograph and diagram the connections of the computer and the corresponding cables.

xi. Label all connectors and cable ends (including connections to peripheral devices) to allow for exact reassembly later. Label unused connection ports as "unused."

xii. Identify laptop computer docking stations to identify other storage media.

1. Check for external hard drives that may be hidden with only the cable exposed.

xiii. Record or log the evidence according to departmental procedures.

xiv. If transport is required, package the components as fragile cargo.

8.6 Explain important considerations for securing and processing computers located in a complex environment.

A. Business environments frequently have multiple computers connected to each other, to a central server, or both.

B. Securing and processing a crime scene where the computer systems are networked poses special problems, as improper shutdown may destroy data. This can result in a loss of evidence and potential severe civil liability.

C. When investigating criminal activity in a known business environment, the presence of a computer network should be planned for in advance, if possible, and appropriate expert assistance obtained.

D. It should be noted that computer networks can also be found in a home environment and the same concerns exist.

E. The possibility of various operating systems and complex hardware configurations requiring different shutdown procedures make the processing of a network crime scene beyond the scope of this guide. However, it is important that computer networks be recognized and identified, so that expert assistance can be obtained if one is encountered.

F. Provide a list of technical resources that can be contacted for assistance as soon as possible. Indications that a computer network may be present include:

i. The presence of multiple computer systems.

ii. The presence of cables and connectors, such as those depicted in the pictures at left, running between computers or central devices such as hubs.

iii. Information provided by informants or individuals at the scene.

iv. The presence of network components.

8.7 Explain important considerations for securing and processing general electronic devices and peripheral evidence.

A. The following electronic devices may contain potential evidence associated with criminal activity:

i. Audio recorders

ii. Audio and video cassette tapes

iii. Flash memory cards

iv. CD's & DVD's

v. Cables

vi. GPS devices

vii. Caller ID devices

viii. Cellular telephones

ix. Tablets (iPad, Kindle, eReaders)

x. Chips (high quantities may indicate chip theft)

xi. PCMCIA cards

xii. Printers (if active allow to complete printing – few have memory)

xiii. Removable media scanners (film, flatbed, video, or watches – few have memory)

xiv. Smart cards/secure ID tokens

xv. Copy machines (have hard drives with images of copies)

xvi. Digital cameras (still and video) and media cards

xvii. Dongle or other hardware protection devices (keys) for software

xviii. Telephones (including speed dialers, and others)

xix. Drive duplicators

xx. External drives

xxi. Wireless access point

xxii. Fax machines

B. Unless an emergency exists, the device should not be operated.

C. Should it be necessary to access information from the device, all actions associated with the manipulation of the device should be documented to preserve the authenticity of the information.

D. Many of the items listed below may contain data that could be lost if not handled properly.

E. Note: When seizing removable media, ensure that you take the associated device that created the media (e.g., tape drive, cartridge drives such as Zip, Jaz, ORB, Clik!, Syquest, LS-120, and DAT Drives (High Capacity Data Storage Media)).

8.8 Identify some common mistakes when handling electronic evidence.

A. Failure to maintain proper identification.
   i. Every action needs to be clearly documented.

B. Failure to notify or provide accurate information to decision makers.
   i. Identify and report any security breaches to appropriate officials.

C. Failure to control access to digital evidence.
   i. Not all personnel should be able to access or tamper with the evidence.
      1. Access times are important to the investigation; opening a file could cause loss of the data.
   ii. The evidence should be carefully controlled.
   iii. The evidence should be maintained by a type of logging system.

D. Failure to report the incident in a timely fashion to appropriate officials.
   i. The longer the investigator waits to perform a forensic duplication a system, the more the evidence will be changing. In other words, the colder the evidence trail will become.

E. Underestimate the scope of the incident.
   i. Investigator (s) should understand the onset of an inquiry or investigation, one never knows what may be discovered later.

F. Failure to have a response plan in place.
   i. Security incidents are often complex investigation requiring specialized skills and knowledge.
   ii. Execution, or lack of specialized staff, prior to planning can jeopardize the evidence and investigation entirely.

G. Specific technical mishaps:
   i. Altering time and date stamps on evidence systems before recording them.
   ii. Killing (terminating) rogue processes.
   iii. Patching the system before investigator respond.
   iv. Not recording commands executed on the system.
   v. Using tools that require a graphical interface.
   vi. Using untrusted commands and binaries.
   vii. Writing over potential evidence by installing software on the evidence media (the original hard drive that needs to be investigated.)

viii. Writing over potential evidence by running programs that store their output on the evidence media.

8.9 Demonstrate how to identify, document, secure, and process potential computer and other electronic evidence.

Unit 9 Specific Crime Scene Searches

Unit Goal: Investigating specific crime scene areas: burglary, theft, robbery, assault, sexual assault, homicide, suicide, kidnapping, and poisoning.

9.1 Identify the methods of investigating an alleged burglary.

A. Observe exterior scene
   i. Determine and then describe the following:
      1. Structure, ex: store in shopping center.
      2. Character of the neighborhood ex: residential or industrial.
      3. Structure's location in relation to street or road.

B. Area lighting, if applicable
   i. Environmental features that may have assisted or hindered the suspect.
      1. Any other exterior features that might have any bearing upon the investigation.

C. Observe point of entry
   i. Determine and describe the following:
      1. Location and point of entry
      2. Means of entries (i.e., prying instrument, blunt instrument, bolt cutters, and other). Include the size and description of tool marks, if present.
      3. Features that may have made point of entry particularly desirable (i.e., bushes offering concealment, window open, and other).

D. Observe interior scene
   i. Search the burglarized structure to locate the burglar.
   ii. General description of interior scene affected.
      1. make a general sketch.
      2. take photographs.
   iii. Note any unusual features of the suspect's M.O.
      1. Example: Suspect left valuable articles at scene or has an extensive criminal mischief).
      2. This information may assist in determining a suspect's age, ability, experience, and sophistication.

E. Evidence

i. Collect, mark, and inventory the evidence, if found.

F. Stolen property inventory
   i. Include a complete description of the following:
      1. Size, make, color, type
      2. Serial and model numbers
      3. Identifying marks

G. Checklist for burglary investigation:
   i. Observe as you approach.
   ii. Establish the elements
   iii. Work as any other crime scene (thoroughly)
   iv. Identify entry/exit points
   v. Tool marks/pry transfer evidence
   vi. Vehicle description/tire impressions
   vii. Footwear impressions
   viii. Interview neighbors/any solicitors
   ix. Had any visitors lately?
   x. Identify the window of opportunity
   xi. Pawn shops/tickets; usual sources for recovering property
   xii. Specific nature and value of items taken (serial numbers)
   xiii. What was not taken?
   xiv. How much destruction to the interior?
   xv. Profile the scene (juvenile vs. professional)
   xvi. Interview the victim thoroughly, obtain a detailed description of the missing property.

9.2 Identify the methods of investigating an alleged robbery.

A. Response to a robbery crime scene:
   i. The chances of an officer involved in a shooting while handling a robbery call is greater than in most crimes.
   ii. Use extreme caution when approaching the scene, even when advised that the suspect has fled. The location or route of flight may still involve a hazard to responding officers.
   iii. When proceeding to the scene, be alert for the following:
      1. Speeding vehicles and license plate information
      2. People running or walking unusually fast
      3. Nervous appearing pedestrians

4. Vehicles or pedestrians resembling descriptions provided by initial broadcast

B. Crime scene search
   i. Physical evidence at a robbery scene is usually minimal and every precaution must be taken to preserve that which does exist

C. Checklist for robbery and aggravated robbery:
   i. Plan your tactical response to a robbery in progress.
   ii. Arrive safely and assume a possibility of shootout.
   iii. Observe as you approach.
   iv. Ensure the scene is safe for police and civilians.
   v. Avoid a hostage situation, if possible.
   vi. Establish the elements of a robbery.
   vii. Physical description (right or left-handed?)
   viii. Conduct a thorough crime scene investigation.
   ix. Protect points of entry/exit and process for latent fingerprints and DNA of all areas where the suspect might have touched.
   x. Actual verbiage, what force was threatened?
   xi. The note, preserve for prints
   xii. How many? Were they organized?
   xiii. What property was taken? (be specific)
   xiv. Description of weapon
   xv. Interview of witnesses and victims (separately)
   xvi. Canvass the neighborhood
   xvii. Immediate broadcast of information
   xviii. Robber's M.O. (Ex: time, disguises, weapon, voice, and peculiarities.)
   xix. Surveillance cameras, if any
   xx. Getaway vehicles and direction of travel
   xxi. Any counter surveillance seen?
   xxii. Check immediate area for discarded evidence.
   xxiii. Preserve all evidence for fingerprints.

9.3 Identify the method of investigating an alleged theft.

A. Interview reporting party/victim
   i. Obtain a complete list and description of the property taken.
   ii. Obtain serial numbers, manufacturer, and model number, identifying characteristics of the missing property or any other descriptive features.
   iii. Determine if there was a theft of service.

B. Determine value of property taken

i. Penal Code Sec. 31.08: Value

ii. The value of property or service is that represented by the fair market value at the time and place of the offense

iii. If fair market value cannot be ascertained, the value is the cost of replacing the property within a reasonable time after the theft.

iv. If property or service has value that cannot be reasonably ascertained by the two methods previously mentioned, the property or service is deemed to have a value of more than $500 but less than $1,500

v. Certain kinds of property have a clear value (i.e., automobiles)

9.4 Identify the method of investigating an alleged physical assault.

A. Assault investigation

i. First consideration is the protection of life and property.

ii. Get all pertinent information. (Example: who is involved, identify victim or complainant, suspect or suspects indicate whether it is domestic violence).

iii. Indicate the motive or reason for the assault.

iv. For simple assault cases, the officer may advise the victim or complainant to:

1. Determine if the situation can be settled without further police action or prosecution.
2. Advise the procedure for a filing complaint, if such is desired.

v. The officer has the authority to make an arrest if they witnessed the assault.

1. Code of Criminal Procedure, Sec. 14.03: Authority of Peace Officers

B. Crime scene

i. Do not touch anything until it has been photographed and/or sketched.

ii. Photograph the victim's wounds and the crime scene.

iii. Collect all physical evidence.

iv. All evidence must be collected, marked, and packaged.

v. Alleged assaults, by their very nature are violent cases, an officer must always be on guard for their own safety.

C. Checklist for an assault, or aggravated assault:

i. Ensure the scene is safe for officers and others.

ii. Provide medical attention, if necessary.

iii. Examine and photographed all injured persons.

iv. Does the victim know the suspect?

v. Do the victim’s wounds match the story they are telling?

vi. Suspect’s description

vii. Process the crime scene.

viii. Identify the weapon/s if applicable.

ix. Thorough interview of victim/witnesses

x. Search area for evidence.

xi. What was the suspect's intent? What did they say?

xii. Was the suspect physically capable of committing the act?

xiii. Do the elements of aggravated assault exist?

xiv. Is this matter civil or criminal?

xv. Apply family violence procedures, if applicable.

xvi. Obtain a waiver for medical records, if applicable.

xvii. Gather all trace and fiber evidence, if any.

xviii. If possible, photograph the injuries again within 2-3 days.

9.5 Identify the method of investigating an alleged sexual assault.

A. Sexual assault investigation

i. Code of Criminal Procedure Sec. 58.101 - Confidentiality of Identifying Information of Sex Offense Victims - Definitions

ii. If the first contact with the victim is at the hospital, law enforcement should wait until the medical forensic exam is complete before talking to the victim (i.e., do not interrupt the exam). Ask the victim where the assault occurred so the crime scene can be secured as soon as possible.

iii. Determine if the crime scene has been altered or contaminated.

1. Did the suspect or the victim change clothing; discard ripped or soiled clothing; remove towels, used condoms, bedding, or any other article?
2. Did the suspect or victim shower or bathe prior to the officer's arrival?
3. Did the suspect or the victim clean up the scene (e.g. contaminate fingerprints or other items of evidentiary value)?

iv. Note and document the suspect's and/or victim's condition.

1. Photograph injuries, if applicable.
2. Identify possible witnesses who may have left the scene.
3. List all witnesses, even if only partial information is available.

v. Reconstruct the crime

1. Take an initial report from the victim. Obtain only the details necessary to determine whether a potential crime occurred, the possible location of the suspect, and where evidence might be located. A detective will obtain a complete interview at another time.

a. Sexual assault is a traumatic experience, associated with high rates of posttraumatic stress disorder traumatized brains do not process information normally.
b. Ask open-ended questions – avoid “who, what, where, why” questions – they can sound accusatory and can confuse victims who are traumatized.
c. Do not expect the victim to be able to recall every detail or recall them in chronological order, especially if the assault just occurred. This does not necessarily mean the victim is not telling the truth. Memory can improve with time and sleep.

2. Isolate evidence to prevent contamination and destruction.
3. Check the suspect's escape route or nearby trash receptacles for discarded evidence.
4. Call the victim’s and witnesses' attention to any items that may have evidentiary value. Clarification or confirmation of evidential items will be needed for further investigation or court purposes.
5. Photograph the crime scene and evidence, if applicable.
6. Identify, collect, and preserve the following evidence:
   a. Fingerprints/footprints
   b. Clothing, bedding, used condoms, tissues, towels, or anything the suspect might have used to wipe their bodily fluids that may possibly contain biological evidence.
   c. Items suspected of containing biological evidence should be permitted to dry at room temperature and should be loosely folded, and then wrapped in clean paper (not plastic).
   d. Binding material used to tie up the victim is usually cut at the bindings several inches away from the knot. The severed ends can be tied together with string. Do not cut or untie knots: they may establish MO and/or link material to that found in suspect's possession.
      - wrap adhesive bindings (i.e. duct tape) in wax paper before packaging.
   e. Weapon(s)
   f. Tool marks (forced entry)

vi. Medical forensic examination

1. Know which facilities in your community have health care providers who are experienced in conducting medical forensic exams, preferably sexual assault nurse examiners (SANEs). By law, all hospital emergency rooms must provide a medical forensic exam, but not all hospitals have trained SANEs.

2. Inform the victim of their right to a medical forensic exam, and the benefits of obtaining treatment and having evidence collected. Victims 18 and older have the right to decline a medical forensic exam.
3. If the victim declines a medical forensic exam, inform them that it will be more difficult to investigate and prosecute the crime without evidence from a medical forensic exam.
    a. Inform the victim they have 96 hours from the time of the assault to receive a medical forensic exam.
4. Some smaller hospitals might not have SAEKs available; your agency should keep a few in storage to bring to the hospital with the victim in case the hospital does not have one. Most of the contents do not expire and can be used beyond the expiration date on the box. If no SAEK is available, instruct the health care provider to access the Texas Evidence Collection Protocol on the Office of the Attorney General website and follow the instructions using swabs and envelopes available at the hospital. Place all envelopes with labeled in a single paper bag if no SAEK is available and label with patient's name, medical record number, age, gender, date of the exam, name of hospital, and name and signature of health care provider.
5. Advise the victim to take a change of clothes or underclothes, in case the clothing they are wearing is taken for evidence.
6. Arrange transportation for the victim to and from the hospital for medical treatment.
7. At the health care facility, sign an “Authorization for Examination and Payment” form or have the facility fax a form you can electronically sign and send to authorize the exam.
8. Limit the information you give to the health care provider about the assault so the victim can provide a history to the health care provider in their own words.
9. The health care provider will examine the victim’s body for injuries and document them using photographs and body diagrams.
10. The health care provider will collect evidence from the victim, including clothing, trace evidence, and swabs that might contain bodily fluids from the suspect, and package them into a sexual assault evidence collection kit (SAEK). The health care provider might also collect a drug-facilitated sexual assault (DFSA) toxicology kit, if indicated. This will be in a separate container (not in the SAEK).
11. Following the medical forensic exam, ask the health care provider if the victim provided them with any additional information that might indicate where additional evidence might be found (for example, did the victim mention a condom was used and its possible current location; did the victim

injure the suspect, indicating where law enforcement should examine the suspect for potential signs of injury).

12. The SAEK and any other evidence will either be given to law enforcement following the exam or the medical facility will maintain custody of the SAEK and other evidence until law enforcement collects it.
13. If the SAEK contains fluids or wet items, refrigerate it. Otherwise, the SAEK does not need to be refrigerated. Always refrigerate DFSA kits.
14. Submit the SAEK and other evidence, if applicable, to a crime laboratory for analysis as soon as possible; by state law, you must submit the SAEK to a crime lab within 30 days of collecting it.
    a. Government Code, Sec. 420.042: Analysis of Evidence.

vii. To avoid potential cross-contamination of evidence, different law enforcement officers should interact with the suspect and with the victim.

viii. If a suspect is taken into custody:

1. Record spontaneous statements.
2. Separate each suspect if there is more than one.
3. Do not permit the suspect(s) into the crime scene area. If the suspect was arrested inside, immediately remove them from the scene.
4. Prevent communication between the suspect(s), victim(s), and witness(s), unless absolutely necessary.
5. Photograph the suspect(s) if there is evidence of injury or torn/stained clothing, which may be of evidentiary value.
6. Preserve and collect the clothing and/or any evidence found on the suspect(s) (e.g. semen/blood stains, weapon(s), and other evidence) immediately upon arrest or from the jail booking process.
7. Properly package all clothing separately in paper evidence bags and submit to agency.
8. Obtain genital swabs and buccal swabs (known DNA sample) from the suspect(s) either by consent or search warrant. Some SANE programs conduct suspect exams by law enforcement request. It is best practice to have different SANEs obtain evidence from suspects and victims to avoid potential cross-contamination.

B. Checklist for sexual assault and aggravated sexual assault:

i. Determine if victim knows suspect.

ii. If the suspect is on location and there is probable cause for an arrest:

1. Follow department policy regarding warrantless arrest.
2. Texas Code of Criminal Procedure, Sec. 14.03: Authority of Peace Officers

iii. If the suspect is not on location, obtain description, identifying information, and any weapon(s).

iv. Offer medical assistance to the victim.

v. Take an initial report from the victim and be patient, understanding, empathetic, and pleasant.

    1. NOTE: if the Victim is under the age of 18, take the victim to have a medical forensic exam. Schedule a forensic interview with a local child advocacy center at the earliest possible time during regular business hours.

vi. Reassure the victim that you are there for assistance.

vii. If the victim requests a female officer, provide one.

viii. Photograph the victim's injuries.

ix. Offer to take the victim to a hospital as soon as possible and inform the victim not to wash, bathe, or change clothing before being transported.

x. Know what facility the victim was transported to so that medical records can be subpoenaed later.

xi. Preserve, process, and photograph the crime scene.

xii. Locate and interview any witnesses in the area.

xiii. Locate any clothing that the victim and the suspect left behind.

xiv. Collect any bedding or cushions that contain stains, pubic hair, and trace evidence (used condoms, items used to wipe bodily fluids).

xv. Entry/exit points - check exterior windows for latent prints and/or DNA.

xvi. Check for any footprints or other evidence outside.

xvii. When interviewing the victim:

    1. Inquire if the suspect took precautions to prevent detection.
    2. Inquire if any personal items were taken and what they were.
    3. Inquire about suspect(s) behavior (i.e. angry, violent, apologetic, inquisitive, needed reassurance).
    4. Inquire if the suspect made any statements during the attack.
    5. Inquire if the suspect strangled the victim at any point during the assault.
        a. Ff so, inform the health care provider.

xviii. Collect any forensic evidence recovered by the hospital, to include the SANE Exam, and promptly submit to the investigating agency or laboratory.

xix. If required, re-interview the victim within 2 to 5 days or communicate with the detective in charge of the case.

xx. Treat all reports of sexual assault as real until known otherwise.

xxi. Follow DNA collection protocols.

9.6 Identify the method of investigating an alleged homicide.

A. Preliminary steps:
    i. Approaching the body.
        1. At this point, in the preliminary investigation officers should be concerned with the following:
            a. Officer safety.
            b. Determining if the person is alive or dead.
            c. Determining the apparent cause of death.
            d. Preserving the scene
                - Has all potential evidence in the scene been located and preserved?
                - Pay special attention to evidence that can easily be lost such as GSR, trace evidence, electronic evidence such as mobile phones and security cameras in the area, etc.
        2. If emergency circumstances require moving the body or removing a weapon from under the body, photograph extensively and mark the original location of the body.
        3. Watch where you step and remember the path you take. When exiting the scene, follow the same path you used to enter.
            a. Wear protective gloves, booties, Tyvek suits, face shields as necessary to avoid scene contamination.
        4. To reduce contaminating the area, restrict and document personnel entering the scene.
        5. Look for signs of life. If the possibility exists that the person is still alive, render aid and summon an ambulance immediately.
        6. If the victim is still alive and conscious, obtain a verbal statement from the person, if possible. This statement may later prove invaluable in establishing whether a crime occurred and in investigating the circumstances surrounding that crime.
            a. Be prepared to record any verbal statements made to you with an audio recorder at a minimum.
        7. Document the scene and your investigative steps with contemporaneous note taking practices.
    ii. Dying declaration
        1. Code of Criminal Procedure, Sec. 804(b)2 - Rules of Criminal Evidence
        2. It is extremely important because it is one of the few types of hearsay evidence, which may later be introduced at the trial.
        3. May be offered in evidence either for or against a defendant charged with the homicide of such deceased person under certain restrictions.

4. For a dying declaration to be considered competent evidence, the following must be proven:
    a. When the declaration was made the victim was conscious of approaching death and believed there was no hope of recovery.
    b. The declaration was made voluntarily.
    c. The declaration was not made in answer to questions designed to lead the deceased to make any particular statement.
    d. The victim was of sane mind when making the declaration.

iii. Determining death
1. EMS personnel will give an opinion as to the presence of life.
2. Obvious signs of death:
    a. Putrefaction - green discoloration of the body usually starts in the abdomen after 24 hours, becoming more pronounced with a green tree-like pattern (marbling) and skin slipping after two (2) or three (3) days. In three (3) or four (4) days there is marbling of veins and further spread of stains into neck and limbs. After five (5) or six (6) days, the entire body shows marked tissue swelling from internal disruption and gases.
    b. Postmortem Lividity - upon death a person's blood pressure drops to zero due to the cessation of the heart. The blood stops circulating and begins to settle by the force of gravity to the lowest point of the body, causing a blotchy, purplish discoloration. Lividity can appear within 30 minutes. If, when lividity first develops, the investigator places a finger firmly against the discolored skin, the pressure will cause blanching. When the pressure is released, the discoloration returns. Full development takes 6 to 12 hours. The location of discoloration is one of the best methods of determining whether a body has been moved, because once lividity is fixed, it remains in the same area.
    c. Postmortem Rigidity (Rigor Mortis) - upon death, a person's muscles begin to stiffen due to chemical changes within the muscle tissue. It develops first in the face and jaws, gradually extending downward into the neck, chest, arms, abdomen and finally into the legs and feet. When a body is in full rigor, it will be extremely rigid and it will be quite difficult to move the members (e.g., to open fingers, move arms, and so on). Although the time element under which rigor develops varies, some general guidelines include: 2 to 4 hours – begin in the face and jaws; by 12 hours the entire body is rigid; and 24-36 hours - rigor leaves the body. Rigor leaves the body in the same order that it is developed. First the face and jaws become flaccid, then the chest, the abdomen, and so on).
        - Factors that delay onset: cold environment; asphyxial death (CO poisoning, hanging); hemorrhage; arsenic poisoning.

- Factors that hasten onset: rigorous exertion prior to death; death in a warm, moist environment; certain diseases; poisoning by alkaloids.

d. Cadaveric Spasm - can be confused with rigor mortis. Whenever death is marked by severe injury to the central nervous system or emotional or muscular tension, an immediate stiffening of the arms and hands may occur. However, if the rigidity were caused by rigor mortis, it would also be present in the jaw and neck muscles.

iv. Witnesses

1. Determine who was on the scene and who had left prior to the arrival of police.
2. Obtain their names, addresses and telephone numbers if possible. If only a nickname or make and color of vehicle they drive is available, write it down.
3. Interview briefly all witnesses at the scene; if necessary, have them transported to the police station for formal statements.
4. Keep witnesses separated until they are interviewed.

v. Suspect in custody

1. If a suspect is arrested, do not interview at the scene.
2. Have the suspect transported to the station for interview.

B. The crime scene (search and examine).

i. A justice of the peace, medical examiner, or county coroner:

1. Should be notified of the circumstances immediately after a death has been discovered.
2. May want to be present at the crime scene or send a representative.
3. Inquests upon dead bodies.
   a. Code of Criminal Procedure, Sec. 49: Inquests Upon Dead Bodies

ii. Document the scene with detailed notes or utilize an agency scene notes packet.

iii. Crime scene examination should now begin and proceed in a methodical manner.

1. Starting with the ground or floor around the body, look for items of evidential value such as stains, marks, hair fibers, footprints, and other details. Oblique lighting from a flashlight often brings out footprints and impressions that would otherwise not be visible.
2. Determine if there is anything on the floor or ground that may be stepped on or destroyed.
3. Determine if anything has been moved or changed prior to your arrival. Has anyone moved the body? Who? Why? When?

iv. Crime scene sketch

1. A sketch should be made of fixed objects, evidence and the body's position in relation to those objects.

v. Crime scene photographs
    1. Photographs should be taken of the entire scene and should include:
        a. Body and immediate vicinity showing any wounds, weapons, and other details.
        b. The ceiling in rooms where there is bloodshed.
        c. Overall, mid-range, and close-up photography.
        d. The use of measurement scales and evidence placards.
    2. During outdoor homicides it is worthy of consideration to take photos of spectators watching the investigation. Although this technique is not recommended or necessary in all cases, it may assist in locating witnesses later.
    3. Photos may reveal the "presence at the scene" of an otherwise reluctant or evasive witness or even the suspect.

vi. Without moving or altering its position, make a close visual examination of the body including looking under the arms and between legs.
    1. If possible, determine the apparent cause of death and instrument or means used. Examples: beating, stabbing, strangulation, gunshot, and other methods.
    2. Carefully observe the external appearance of the body and make detailed notes. Is it bloody, beaten, decomposed, etc.
    3. Describe the clothing of the deceased, including condition of clothing, any ripping, unzipped pants, right shoe tied, left shoe untied, and pertinent details.
        a. Examine and, if necessary, photograph folds and creases on the clothing. The direction of the folds and creases could provide information leading to the method of transporting or placing the body at the location where it was found.
    4. Look for the presence of blood. Document their appearance to include:
        a. the size of the stain or pattern
        b. the shape of the stain or pattern
        c. how the patterns or stains are distributed
        d. the location of the patterns and stains.
    5. Describe the type, location and appearance of wounds, bruises, and any other markings.
    6. Types of wounds:

a. Lacerations - tears in tissue and may be either external (skin) or internal (e.g. stomach wall, liver, and any other internal organs). They are caused by a direct blunt force, which produces tears in the skin that is ragged, with edges that are bruised (contused). (Ex: A blow from a club to the head causes torn skin flaps).
    - The laceration does not correspond in shape to the instrument producing it.
b. Incised wounds - cuts, usually of the skin. The edges are regular, sharp, clean cut with no bruising of surrounding skin. Depth of wound varies at the edges. Wounds bleed freely.
c. Stab and puncture wounds - piercing injuries of the surface of the body and may extend into the internal organs. The wounds are caused by rigid, slender weapons, with or without a sharp edge, but possessing a fairly sharp point. Surface appearance tends to conform in pattern to the entering point. The point of entry may be inconspicuous, if, for example, caused by an ice pick. If multiple wounds, each wound may differ even though produced by the same weapon:
    - different angle, or
    - different applied force.
d. Gunshot wounds - are often similar in external appearance to stab wounds.
e. Entrance wounds - when a bullet strikes a part of the body that is not backed by bone, the skin indents and stretches under impact. As the bullet, which has rotation as well as forward motion, forces its way through, a small area of skin meets the side of the bullet. This causes the wiping-off of smoke and grime that is deposited around the entrance wound. Since the bullet stretches the skin by its passage, the wound entrance will appear to be smaller than the diameter of the bullet that made it. If the bullet strikes the skin at an angle, the gray zone around the hole will be wider on one side and narrower on the other. Generally, there is only a small amount of bleeding from the entrance wounds because the tissue destruction is not great at that point.
f. Exit wounds - much larger than the bullet and are ragged and torn. As the bullet passes through the body, it packs the tissue in front of it. If it has the momentum to go through the body, it bursts its way out through the tissues. The loss of blood is generally much greater than at the entrance wound, and often shreds of fat or other tissues will be extruding from the wound.
g. Direct muzzle contact - contact wounds caused when the muzzle of the firearm is held directly against the skin and fired. Visible damage is due

more so to the flame and expanding gases than to the penetrating bullet. The skin edges are torn and charred from the heat of the muzzle blast.

h. Muzzle 2 to 18 inches away - smudging and tattooing are the two indicative signs that a bullet has been fired from within 2 to 18 inches. Smudging - deposit of smoke and soot from the burned powder that is deposited around the entrance wound. It has a dirty grimy appearance and is only on the surface of the skin. It can be wiped off easily with a cloth. Tattooing / Stippling - residue of unburned powder granules and minute particles of molten metal from the bullet that are driven under the skin by the force of the blast. It remains permanently and cannot be wiped off.

vii. Actual body examination

1. The responding law enforcement agency's standard operating procedure (SOP) should dictate who has the authority to handle and/or move the body, whether the justice of the peace, the medical examiner, or the county coroner.
2. After photographs are taken, and the inquest is completed, the body should be moved, causing minimal disturbance, to perform a more detailed search.
3. Examine and photograph the area under the decedent to locate any additional evidence.

C. Expanding the search

i. Officers are free to seize any evidence that is in plain view during a lawful search within "arms reach" of the suspect or in other rooms where additional victims or suspects may reasonably be located.

ii. Once officers determine that evidence may be present in areas beyond the scope of a cursory search, they should obtain a search warrant; in the meantime, secure the crime scene in order to prevent any evidence from being destroyed. At this time, the officers should make it clear to all persons present that there is an investigation pending and anyone who alters, destroys, or conceals any evidence is committing an offense under Penal Code Sec. 37.09: Tampering With or Fabricating Physical Evidence.

iii. When acting within the scope of the obtained search warrant or with the permission of one who has the authority to give it (consent search), a systematic check of the structure and area is in order. Carefully note items of evidence or conditions that may shed additional light on the investigation, such as:

1. Doors: Locked or bolted (from inside or outside). Marks of forced entry: broken doorbell, missing doorknocker, scratches around the keyhole, and other discrepancies.
2. Windows: What type? Locked or unlocked? Positions of window catch, type and position of curtains, drapes or blinds, possibility of seeing in.

3. Papers and Mail: Unopened or recently opened mail (could give a general indication of time, date, and/or location).
4. Lighting: Which lights were on when the crime was discovered? How are they controlled (i.e. switches)? Can the lights be seen from the outside? Bulbs warm?
5. Odors: Gas, strong tobacco, alcohol, perfume, and gunpowder?
6. Kitchen: Food being prepared? What kind? (May or may not correspond with the victim's stomach contents). Partially eaten? Have utensils, glasses, plates been used? Stove on or warm? Water running? Coffee pot empty or have the contents been evaporated?
7. Heating conditions: What type? Is it ventilated? Stove used to heat area warm or cold? Thermostat, fireplace, warm or cold? Examine residue indicating that the suspect might have attempted to burn the evidence.
8. Evidence of multiple person(s): Bottles (labels, brands, types of liquor, and other); Cups and glassware (their contents, number, any lipstick markings, and the number of places settings).
9. Contents of ashtrays: Cigarette packs, butts, brands, way in which cigarettes have been extinguished, marks of lipstick. NOTE: Latent impressions can be chemically developed on cigarette butts. Cigarette butts are an excellent source for DNA
10. Contents of wastebaskets and trash cans: Has anyone been through looking for anything? Is trash in proper order? (Check for the dates on newspapers, letters, and other documents).
11. Clocks and watches: Wind up or electric? Are they running? Do they show the right time? When did they stop? Time alarm set for?
12. Bath and toilet areas: Are towels, rags, and other products in this area, damp or blood stained? Check attempts of suspect to destroy evidence or wash themselves. Check medicine cabinets for drugs, and other illegal substances.
13. General disorder: Evidence of a struggle, dirty, etc.
14. Shooting: How many bullets fired? Caliber or gauge? Account for all, if possible. Cartridge cases (number and location). Was the weapon left at the scene?
15. Stabbing or beating: Was the instrument left at the scene? Could it have come from the location or did the suspect bring it? (Will have some bearing on proving intent)
16. Blood: Size, shape, distribution, and location. Sketch/photograph bloodstains and patterns
17. Hanging or strangulation: What instrument or means was used? Was it obtained in the house? Any portions remaining? Do not untie any knots.

18. Stairs, passages, entries, and exits to the scene: Check for footprints, debris, discarded items. Attempt to determine the route the suspect used to enter and leave.
19. Ransacking: To what degree, if any, has the residence been ransacked? Was anything stolen? (Relatives and neighbors may shed light on this)
20. Hiding places for weapons which the suspect may have concealed quickly: Check behind stoves, on top of high furniture, behind books in a bookcase, among bed clothes, on the bed, behind the water heater, in closets, in attic and other areas where a weapon can be hidden.

iv. Personal information: Is the victim married? Determine in detail the state of the marriage as possible.

v. Rural-type areas: Many problems present in populated areas will also be found in rural areas. There are, however, some significant differences:

1. Accessibility
2. Length of time body may have been there prior to being discovered may have brought about major physiological changes. Example: decomposition, attacks by animals, and other noticeable changes.
3. Aerial/drone photographs can be useful in almost any case. They may provide information for the investigator and are effective when presented to a jury.

D. Crime scene reenactments

i. One method used to obtain an idea of what occurred is to reenact the crime, using law enforcement personnel. This may support or refute any working hypothesis.

9.7 Identify the methods of investigating an alleged suicide.

A. Suicide determination/investigative factors:

i. The determination that a death is a suicide is established by the following:

1. An orderly preliminary investigation and interpretation of evidence gathered at the scene of death.
2. The results of an investigation are made at the following locations:
   a. By a medical examiner or pathologist
   b. In the toxicology laboratory
3. The elimination of natural, accidental, and homicidal means.
4. The demonstration of facts consistent with self-destruction.

ii. "Equivocal Suicide" describes cases where the decision of the manner of death is in doubt and uncertain.

1. In other words, suicide is a possibility, but there could be more than one interpretation:

a. Natural causes.
b. Accident.
c. Homicide.

2. These cases involve a great deal of time spent in the following areas:
   a. Extensive field investigation in which an attempt is made:
      - Reconstruct the victim's background,
      - Delve into the victim's personal relationships,
      - Study the personality traits, character, and lifestyle of the victim, and
      - Obtain detailed information of events that occurred in the days/hours prior to the victim's death.
   b. Painstaking evaluative judgment as to the victim's intentions in relation to their own death.
3. Family members and friends are sometimes the reason a determination of suicide is not made.
   a. They may directly suppress evidence through such means as:
      - Evasion.
      - Denial.
      - Concealment or destruction of such evidence as empty medicine containers or suicide notes.
4. The final determination of suicide remains as a medico-legal opinion.
   a. This opinion is, at best, subjective and is made only after an evaluation of all available evidence.
   b. When there is nothing to prove the death as accident or suicidal, a presumption is made that the death is accidental.

B. Procedures involved in determining types of suicides:
   i. If a firearm is involved, check the following:
      1. Is the wound consistent with the firearm?
      2. The position of the weapon in relation to the position of the victim.
      3. The ownership and trace of the firearm.
      4. Did the victim know how to use a firearm?
      5. Are there other weapons on the premises?
      6. Varying amounts of powder burn around the entrance of the wound.
      7. Backspatter on firearm, hand, and forearm?
      8. Gunshot residue collection on victim and others.
   ii. Overdose
      1. Check for the following:

a. Whether the victim made their intentions known. Persons who commit suicide may make their intentions known.

2. Officer procedure

a. Locate drugs and determine:

- Their date of issue
- How many were used

b. Secure all suspicious drugs.

iii. Hanging

1. Check for the following:

a. The marks on the neck should be high.

b. The neck will stretch depending on the length of time the body has been hanging.

2. When an officer cuts the rope or other hanging device, cut above the knot.

3. Save the knot for evidence.

iv. Jumping

1. It is extremely difficult to determine whether a person actually jumped, accidentally fell, or was intentionally pushed.

2. The officer should look for signs of a struggle and prints in the area from which the jump occurred.

v. Slashing of wrists

1. Common in bathrooms, kitchens, and bedrooms

2. The officer should look for hesitation marks.

vi. Carbon monoxide poisoning

1. a. Most commonly a hose is used which carries exhaust fumes into the car or when the car is in an enclosed area.

vii. Fire

1. a. Most commonly the victim pours a combustible material over themselves and ignites it.

viii. Moving vehicles

1. The victim leaps in front of a train, motor vehicle, or other.

2. The victim drives a vehicle into a fixed object.

C. Autopsy

i. Code of Criminal Procedure, Sec. 49.25: Medical Examiners

ii. An autopsy should always be performed on any suspected suicide.

D. Suicide notes

i. Must be handled with care so they can be processed for the following:

1. Latent prints
2. Handwriting analysis
    a. Obtain samples of the victim's handwriting.
    b. Keep in mind the possibility that a suicide note may have been written under duress.

E. General recommendations:

i. The deceased's family and friends may not accept that the manner of death is ruled as a suicide, Therefore, thorough scene documentation and evidence collection is critical.

ii. Look for signs that the scene has been altered to appear as a suicide to cover up a murder.

9.8 Identify the methods of investigating an alleged abduction.

A. Investigative procedures.

i. Numerous agencies, including local, state, and federal authorities (i.e., the FBI), may become involved in an abduction investigation.

ii. Thorough and intensive multi-agency coordination and cooperation must be maintained.

iii. Ransom notes, telephone conversations, and other communications from the perpetrators must be expertly recorded, analyzed, and interpreted.

B. The search for evidence.

i. The search for physical evidence must be thorough, knowing that eyewitness testimony can change.

ii. The nature and extent of the search is governed by such considerations as the following:

1. Type of property
2. Place of occurrence
3. Type of area
4. Articles or materials of evidentiary value

iii. Officers collecting evidence should avoid moving any item of physical evidence until:

1. Notes are made.
2. Photographs are taken.
3. Measurements are recorded.
4. Sketches are prepared.
5. Items are examined for latent prints.

9.9 Identify the methods of investigating an alleged poisoning.

A. Importance of the preliminary investigation:

i. The preliminary investigation of a poisoning occurrence can be of critical importance in saving the victim's life.
    1. Summon medical attention, if necessary.
    2. Trained investigators can easily detect certain poisons.
    3. Seek medical practitioners, in order to administer appropriate treatment. This will depend on the officer's ability to quickly locate and possibly identify the poison.
ii. The preliminary investigation is critical when proving a poisoning to be accidental or intentional.
    1. Available physical evidence, carefully collected and identified, can indicate whether the poisoning is a:
        a. Suicide
        b. Homicide
        c. Accidental
iii. The preliminary investigator should investigate all suicides and unnatural deaths as potential homicides.
    1. Once it has been revealed that a murder has been committed, careful consideration must be given to the case for the following reasons:
        a. Establishing a suspect and proving their guilt may be particularly difficult as circumstantial evidence may provide the only clue(s) to the murder.
        b. There is rarely a witness to a poisoning.
iv. Interview witness(s) and suspect(s), if present.

B. Crime scene search
    i. Make a search to locate the source of poison
    ii. Try to ascertain the amount of poison ingested by the victim(s).
        1. When this information is determined, notify involved medical personnel immediately.
    iii. Determine the actions taken by the victim prior to becoming comatose or dead.
    iv. If the poison is present in the atmosphere and is posing a danger to others, immediately evacuate the area.
        1. This situation is usually the result of a chemical fire or spillage.
        2. Notify the fire department for a wash-down and/or chemical neutralization, if necessary.
    v. If the poisoning is criminally connected or there is suspicion of foul play:
        1. Do not overlook the possibility of latent prints.
        2. If the victim is in critical condition, have an officer accompany them to a medical facility in case a dying declaration is made.

C. Classification of poisons.
    i. Inorganic poisons:
        1. Cyanide
        2. Arsenic
        3. Mercuric chloride
        4. Antimony compounds
        5. Lead salts
        6. Phosphorous
    ii. Gaseous poisons:
        1. Carbon monoxide
        2. Illuminating gas
        3. Hydrogen sulfide
        4. Sulfur dioxide
    iii. Solvents:
        1. Chloroform
        2. Ether
        3. Acetone
        4. Benzene
        5. Carbon Disulfide
        6. Carbon Tetrachloride
    iv. Organic poison:
        1. Salicylates
        2. Barbiturates
        3. Narcotics
        4. Strychnine
        5. Nicotine
D. Poison symptoms
    i. Types:
        1. Vomiting
        2. Abdominal pains
        3. Convulsions
        4. Delirium
        5. Coma
    ii. The recording of symptoms should include all information concerning the victim's actions immediately prior to death or unconsciousness.

1. A chance remark, in relating the symptoms to the officer, may provide information necessary to permit a toxicologist to make a calculated guess as the first step in determining the type of poison.

E. Handling of poison evidence.
   i. In every suspected poisoning case, the officer should make an immediate search for the following:
      1. Possible source(s) of the poison
      2. Container(s) for such
   ii. When the source of the poison is located, it should be isolated and chain of custody should be maintained.
      1. If the source is identified, notify concerned medical personnel immediately.
      2. If the source is not identified, immediately have the suspected substance transported as quickly as possible to one of the following:
         a. Local crime laboratory
         b. Medical research facility
         c. Emergency medical facility where victim is treated
   iii. Materials suspected, as evidence should also be collected, can include:
      1. All the contents of a medicine chest
      2. Freshly used drinking glasses
      3. Partially empty or empty beverage bottles
      4. Used spoons
      5. Foods or beverages
   iv. Evidence should be photographed before being collected.
   v. Evidence to be analyzed should be properly packaged in appropriate containers.

Unit 10 Simulated Crime Scene

Unit Goal: Perform a simulated crime scene search, which will be coordinated by the instructor(s).

10.1 Demonstrate a search under a simulated crime scene.

A. A simulated crime scene should entail at least one of the following incidents:
   i. Burglary
   ii. Theft
   iii. Robbery
   iv. Assault
   v. Sexual assault
   vi. Homicide

vii. Suicide
viii. Kidnapping
ix. Poisoning

B. The investigation should include the following tasks:
   i. Crime scene search. Organize and conduct the searches utilizing one of the following methods: strip, circular, and quadrant.
   ii. Sketch of a crime scene, include the following:
      1. All appropriate measurements
      2. Identification of items of evidence
      3. Identification of reference points
      4. Scale to which sketch is drawn
      5. Legend or key
      6. Direction of north
   iii. Photographing the scene
   iv. Fingerprinting
      1. Examine scene for prints
      2. Dust and lift latent impressions
      3. Collect known inked prints from possible suspect(s)
   v. Locating the evidence
      1. Identify
      2. Collect
      3. Mark
      4. Preserve
   vi. Preparing a complete offense report and any supplementary reports.

10.2 Complete a final evaluation.

A. Students should turn in all their reports and materials to the instructor(s) for a final evaluation.

10.3 Receive a class critique.

A. If time permits, students should be required to present their reports or any other assignments to the class for critique.

APPENDIX A

Crime Scene Safety

Purpose: This section will provide a familiarity of the hazards, safety precautions, safe work practices, and personal protective equipment (PPE) recommended for personal processing routine crime scenes. Always consult local, state, and federal environmental and occupational health and safety laws when collecting and transporting forensic evidence.

Scope of Problem: Among the inherent risks associated with crime scene investigation and evidence collection is exposure to potentially infectious human blood and body fluids, chemicals, and physical hazards such as hypodermic needles, broken glass, and other sharp objects. The student will be provided a brief discussion of the different routes of exposure by which a contaminant enters the body resulting in an injury or illness. In addition, the student will be introduced to the safety precautions, safe work practices, and personal protective equipment that are recommended for those individuals performing crime scene searches in hazardous environments.

B. Routes of exposure:
   i. Inhalation.
      1. Airborne contaminants at a crime scene can be in the form of a dust, aerosol, smoke, vapor, gas, or fume.
      2. Depending on the contaminant, immediate respiratory irritation or destruction might ensue upon inhalation.
      3. Some airborne contaminants can enter the bloodstream via the lungs when inhaled.
      4. Once in the bloodstream, the contaminant can circulate throughout the body and cause chronic damage to the liver, kidneys, central nervous system, heart, and blood-forming organs.
      5. Proper work practices along with adequate ventilation can minimize airborne contaminant inhalation. In extreme cases, respiratory protection is required.
   ii. Skin contact.
      1. Skin contact is a frequent route of entry into the body that can result in localized or systemic health effects.
      2. Localized effects can result in irritation or damage to the tissues at the point of contact. These effects can include irritation, redness, swelling, or burning.
      3. The severity of the injury will depend on the concentration of the substance and the duration of contact.
      4. Systemic effects, such as dizziness, tremors, nausea, blurred vision, liver and kidney damage, shock, or collapse, can occur once the substances are absorbed through the skin and circulated throughout the body.

5. Exposure can be prevented by the use of appropriate gloves, safety glasses, goggles, face shields, and protective clothing.

iii. Ingestion

1. Ingestion is a less common route of exposure.
2. Ingestion of a corrosive material can cause damage to the mouth, throat, and digestive tract.
3. When swallowed, the body can absorb toxic chemicals through the stomach and intestines.
4. To prevent entry of chemicals or biological contaminants into the mouth, wash hands before eating, smoking, or applying cosmetics. Also, do not bring food, drink, or cigarettes into areas where contamination can occur.

iv. Injection

1. Needle sticks and mechanical injuries from contaminated glass, metal, or other sharp objects can inject contaminants directly into the bloodstream.
2. Extreme caution should be exercised when handling objects with sharp or jagged edges.

C. Safety

i. Bloodborne pathogen safety

1. On December 6, 1991, the Occupational Safety and Health Administration (OSHA) issued Title 29, part 1910.1030 of the Code of Federal Regulations (CFR) – Occupational Exposure to Bloodborne Pathogens (BBP). Those occupations at risk for exposure to bloodborne pathogens include law enforcement, emergency response, and forensic laboratory personnel
2. Fundamental to the BBP standard is the concept of Universal Precautions. This concept is the primary mechanism for infection control. It requires employees to treat all human blood, body fluids, or other potentially infectious materials as if infected with bloodborne diseases such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV).
3. The following protective measures should be taken to avoid direct contact with these potentially infectious materials:
    a. Use barrier protection such as disposable gloves, coveralls, and shoe covers when handling potentially infectious materials. Gloves should be worn, especially if there are cuts, scratches, or other breaks in the skin. Change gloves when torn, punctured, or when their ability to function as a barrier is compromised.
    b. Wear appropriate eye and face protection to protect against splashes, sprays, and spatters of infectious materials. Similar precautions should be followed when collecting dried bloodstains.

c. Place contaminated sharps in appropriate closable, leak proof, puncture-resistant containers when transported or discarded. Label the containers with a BIOHAZARD warning label. Do not bend, recap, remove, or otherwise handle contaminated needles or other sharps.

d. Prohibit eating, drinking, smoking, or applying cosmetics where human blood, body fluids, or other potentially infectious materials are present.

e. Wash hands after removing gloves or other PPE. Remove gloves and other PPE in a manner that will not result in the contamination of unprotected skin or clothing.

f. Decontaminate equipment after use with a solution of household bleach diluted 1:10, 70 percent isopropyl alcohol, or other disinfectant. Non-corrosive disinfectants are commercially available. Allow sufficient contact time to complete the disinfection process.

4. In addition to Universal Precautions, engineering controls and prudent work practices serve to reduce or eliminate exposure to potentially infectious materials. Engineering controls can reduce potential hazards by isolating or removing the hazard from the work environment. Examples of engineering controls include puncture-resistant containers used for storage and disposal of sharps and paint stirrers and long-handled mirrors for use in locating and retrieving evidence in confined or hidden spaces.

ii. Chemical safety

1. Depending on the type of material encountered, a variety of health and safety hazards can exist

2. Some of those hazards are identified by the following categories:

a. Flammable or combustible materials, such as gasoline, acetone, and ether ignite easily when exposed to air and an ignition source (spark or flame).

b. Over time, some explosive materials, such as nitroglycerine and nitroglycerine-based dynamite, deteriorate to become chemically unstable. In particular, ether will form peroxides around the mouth of the vessel in which it is stored. All explosive materials are sensitive to heat, shock, and friction, which are employed to initiate them.

c. Pyrophoric materials, such as phosphorus, sodium, and barium, can be liquid or solid and can ignite in air temperatures less than 130 degrees Fahrenheit (54 degrees Celsius) without an external ignition source.

d. Oxidizers, such as nitrates, hydrogen peroxide, and concentrated sulfuric acid, are a class of chemical compounds that readily yield oxygen to promote combustion. Avoid storage with flammable and combustible materials or substances that could rapidly accelerate its decomposition.

e. Corrosive materials can cause destruction to living tissue or objects such as wood and steel. The amount of damage is dependent upon the concentration and duration of contact.

3. Remember, when working with chemicals, be aware of hazardous properties, disposal techniques, personal protection, packaging and shipping procedures, and emergency preparedness. This awareness comes from the information contained in a Material Safety Data Sheet (MSDS) and appropriate training. The MSDS provides information on the hazards of a particular material, so that personnel can work safely and responsibly with hazardous materials.

iii. Confined space safety

1. A confined space is an enclosed area large enough for personnel to enter and work. It has limited or restricted means for entry or exit and is not designed for continuous occupancy (Ex: open pits, tank cars, and vats).

2. Confined spaces can expose personnel to hazards including toxic gases, explosive or oxygen-deficient atmospheres, electrical dangers, or materials that can engulf personnel entering. Conditions in a confined space must be considered dangerous and must not be entered unless tested with a calibrated direct-reading instrument for oxygen content, flammable gases and vapors, and potentially toxic air contaminants.

3. Practice the following guidelines when working in a confined space:

a. Never enter before all atmospheric, engulfment, and mechanical hazards have been identified, and procedures have been developed to abate those hazards.

b. Remove all unwanted energy sources or hazardous substances.

c. Provide forced-air ventilation. Ensure ventilation equipment does not interfere with entry, exit, and rescue procedures.

d. Never introduce hazards such as welding or cleaning solvents without first making provisions for these hazards.

e. Continuously monitor for oxygen, combustibles, and toxins even after initial testing confirms a safe atmosphere for entry. Remember, conditions can change at any time.

f. Always provide barriers to warn unauthorized personnel and to keep entrants safe from external hazards.

g. Always provide constant communication between the personnel entering the crime scene and outside personnel. Have back-up communication if using two-way radios.

h. Always wear appropriate PPE, be familiar with the use and limitations of that equipment, and ensure its proper maintenance.

i. Use the buddy system when entering a confined space.

j. Never attempt a rescue unless you are part of a designated rescue team and have the proper knowledge, training, skills, and equipment to perform a safe rescue.

k. Use of safety belts and harnesses is mandatory.

l. (For additional information, refer to the OSHA standard for Permit-Required Confined Spaces, 29 CFR 1910.146.)

D. Personal protective equipment

i. Hand protection

1. Hand protection should be selected on the basis of the type of material being handled and the hazard, or hazards, associated with the material. Detailed information can be obtained from the manufacturer.

2. The following is general information about glove material types and their functions:

a. Nitrile - provides protection from acids, alkaline solutions, hydraulic fluid, photographic solutions, fuels, lubricants, aromatics, petroleum, and chlorinated solvents. It also offers some resistance to cuts and snags.

b. Neoprene - offers resistance to oil, grease, acids, solvents, alkalies, bases, and most refrigerants.

c. Polyvinyl chloride (PVC) - is resistant to alkalies, oils, and limited concentrations of nitric and chromic acids.

d. Latex (natural rubber) - resists mild acids, caustics, detergents, germicides, and ketonic solutions. Latex will swell and degrade if exposed to gasoline or kerosene. When exposed to prolonged, excessive heat or direct sunlight, latex gloves can start to degrade, causing the glove materials to lose their integrity.

e. Powder-free gloves (with reduced protein content) - will lower the risk of developing latex allergies. Personnel allergic to latex can usually wear nitrile or neoprene.

3. Guidelines for glove use

a. Prior to donning, inspect the gloves for holes, punctures, and tears. Remove rings or other sharp objects that can cause punctures.

b. When working with heavily contaminated materials, it is prudent to wear a double layer of gloves.

c. Change gloves when torn or punctured or when their ability to function as a barrier is compromised.

d. To avoid contamination of unprotected skin or clothing, remove disposable gloves by grasping the cuffs and pulling them off inside out. Discard disposable gloves in designated containers. Do not reuse.

ii. Eye protection

1. Appropriate eye protection (safety glasses and goggles) should be worn when handling biological, chemical and radioactive materials.
2. Face shields offer better protection to the face when there is a potential for splashing or flying debris. Face shields must be worn in combination with safety glasses or goggles because face shields alone are not considered appropriate eye protection.
3. Contact lens users should wear safety glasses or goggles to protect the eyes. In the event of a chemical splash into the eye, it can be difficult to remove the contact lens to irrigate the eye.
4. For personnel who wear prescription glasses protective eyewear is available and should be worn over prescription glasses.

iii. Foot protection

1. Shoes that completely cover and protect the foot are essential. Protective footwear should be used at crime scenes when there is a danger of foot injuries due to falling or rolling objects or to objects piercing the sole and when feet are exposed to electrical hazards.
2. The standard recognized by OSHA for protective footwear is the American National Standard for Personal Protection, Protective Footwear, ANSI Z41-1991.
3. Non-permeable shoe covers can provide barrier protection to shoes and prevent contamination outside of the crime scene.

iv. Respiratory protection

1. Certain crime scenes, such as bombings and clandestine laboratories, can produce noxious fumes and other airborne contaminants that require respiratory protection.
2. At a minimum, compliance with Title 29 CFR 1910.134 is mandatory whenever personnel use respirators.
3. Critical elements for the safe use of respirators include a written program, training, medical evaluation, fit testing, and a respirator maintenance program. Without these elements, the wearer does not receive the degree of protection anticipated.

v. Head protection

1. In certain crime scenes, such as bombings where structural damage can occur, protective helmets should be worn.
2. The standard recognized by OSHA for protective helmets is ANSI's Requirements for Industrial Head Protection, Z89.1-1997.

E. Hazardous material transportation

i. Title 49 of the Code of Federal Regulations

1. Title 49 CFR codifies specific requirements that must be observed in preparing hazardous materials for shipment by air, highway, rail, or water. More specifically, the International Air Transport Association, in cooperation with the International Civil Aviation Organization, publishes the Dangerous Goods Regulations annually.
2. All air transporters follow these regulations, which describe how to package and prepare hazardous materials for air shipment.

ii. Title 49 CFR 172.101.

1. Title 49 CFR 172.101 provides a Hazardous Materials Table, which identifies items considered hazardous for the purpose of transportation, special provisions, hazardous materials communications, emergency response information, and training requirements.
2. Training is required to properly package and ship hazardous materials employing any form of commercial transportation.

[Source: This information was adapted from: Handbook of Forensic Services.(Revised 1999). Federal Bureau of Investigations. U.S. Department of Justice, Washington D.C.: Superintendent of Documents, Inc.]

APPENDIX B: Scene Notes

Agency Name Here

CRIME SCENE INVESTIGATOR FIELD NOTES

Issued by: Quality Manager
MCSO Form # CSILOG

Page ___of ___ Initials:_____

Issue Date: 8/23/2018
Revision 1

CASE # _____

INVESTIGATOR: _____

OFFENSE: _____

LOCATION: _____

DATE: _____

Note: *Prossessing is assumed to occur on the date listed above. Should processing extend into subsequent dates where this same CSI Packet is utilized, the date shall be noted on the appropriate page(s).*

Crime Scene Investigator Field Notes

Case #: _____ Offense: _____

Date: _____ Day of the Week: **S M T W Th F S**

Time of Offense: _____ **AM / PM** Temperature: _____

Weather: **Clear Cloudy Foggy Rainy Other** _____

Location: _____

City: _____ Zip: _____ GPS: _____

Notified By: _____

Time Notified: _____ Time Enroute: _____ Time Arrived: _____ Time Cleared: _____

County Offense Occurred In: _____

Case #: _____

Personnel on Scene

Position	Name	Unit Number	Rank (if any)
Patrol / Jail Supervisor			
Primary Patrol / Jail Deputy			
Additional Deputies			
Case Agent			
Additional Detectives			
Additional CSI's			
Outer Agency Deputies / Officers			

EMS

Medic #: _____ Medic Names: _____

Time Notified: _____ **AM / PM** Time Enroute: _____ **AM / PM** Time Arrived: _____ **AM / PM**

Code 4: **Yes** **Time:** _____ **AM / PM** * **No** _____ Time Cleared: _____ **AM / PM**

Medical Examiner / Coroner / Justice of the Peace

Name: _____ Pct. #: _____ Unit #: _____

Time Notified: _____ **AM / PM** Time Arrived: _____ **AM / PM** Autopsy: **Yes / No**

Body Transport

Transported by: _____

Time Notified: _____ **AM / PM** Time Arrived: _____ **AM / PM** Time Cleared: _____ **AM / PM**

Case #: _____

Initial Briefing Information:

Scene Information:

Scene Events Prior to CSI Arrival:

Case #: _____

Scene Information

Outdoor Scene: **Yes / No** * **Open Field** **Wooded** **Partially Wooded** **Roadway** **Other** _____

Water Related: **Yes / No** Water Source: _____

Water Depth: _____ Water Temp: _____ Water Sample Collected: **Yes / No**

☐ Home ☐ Mobile Home * **Singlewide / Doublewide** ☐ Apartment * L / W: _____

☐ Business * Type: _____

Exterior Construction: **Brick** **Wood** **Metal** **Other** _____

Primary Color: _____ Trim Color: _____ Elevation: _____

Direction Facing: **N S E W** Side of Roadway: **N S E W** Distance to Roadway: _____

Available Light: **Dawn** **Dusk** **Daylight** **Night** Exterior Lighting: **Yes / No**

Lighting Type / Description: _____

Interior Lighting Description: _____

_____

Electric Service: **On / Off** Thermostat: **AC / Heat / Off** Fan: **On / Off / Auto**

Temperature Setting: _____ Interior Temperature: _____ Exterior Temperature: _____

Additional A/C Information: _____

Forced Entry: **Yes / No** Doors Secured: **Yes / No** Windows Secured: **Yes / No**

Door / Window Notes: _____

Telephone Service: **Yes / No / Disabled** * Describe _____

Phone(s) Type: **Corded** **Cordless** **Cellular** Answering Machine: **Yes / No**

Notes: _____

Television: **On / Off** * Describe: _____

Radio: **On / Off** * Describe: _____

Case #: _____

Scene Information

Outdoor Scene: **Yes / No** * **Open Field** **Wooded** **Partially Wooded** **Roadway** **Other** _____

Water Related: **Yes / No** Water Source: _____

Water Depth: _____ Water Temp: _____ Water Sample Collected: **Yes / No**

☐ Home ☐ Mobile Home * **Singlewide / Doublewide** ☐ Apartment * L / W: _____

☐ Business * Type: _____

Exterior Construction: **Brick** **Wood** **Metal** **Other** _____

Primary Color: _____ Trim Color: _____ Elevation: _____

Direction Facing: **N S E W** Side of Roadway: **N S E W** Distance to Roadway: _____

Available Light: **Dawn** **Dusk** **Daylight** **Night** Exterior Lighting: **Yes / No**

Lighting Type / Description: _____

Interior Lighting Description: _____

_____

Electric Service: **On / Off** Thermostat: **AC / Heat / Off** Fan: **On / Off / Auto**

Temperature Setting: _____ Interior Temperature: _____ Exterior Temperature: _____

Additional A/C Information: _____

Forced Entry: **Yes / No** Doors Secured: **Yes / No** Windows Secured: **Yes / No**

Door / Window Notes: _____

Telephone Service: **Yes / No / Disabled** * Describe _____

Phone(s) Type: **Corded** **Cordless** **Cellular** Answering Machine: **Yes / No**

Notes: _____

Television: **On / Off** * Describe: _____

Radio: **On / Off** * Describe: _____

Case #: _____

Persons Involved

Person #: _____ **Complainant** **Suspect** **Witness** **Other** _____

Name: _____ Alias: _____

Race: _____ Sex: _____ D.O.B.: ____ / ____ / ____ Height: _____ Weight: _____

Drivers License #: _____ State: _____ Social Security #: _____ / _____ / _____

Transported from Scene: **Yes / No** Transported To: _____

Hands Bagged: **Yes / No** Clothes Saved: **Yes / No**

Evidence Exemplars Collected

Fingernail Scrapings: **Yes / No** Fingernail Cuttings: **Yes / No** Head Hair Combed: **Yes / No**

Pulled Head Hair: **Yes / No** Pubic Hair Combed: **Yes / No** Pulled Pubic Hair: **Yes / No**

S.E.M. Kit: **Yes / No** Saliva Sample: **Yes / No** Fingerprints: **Yes / No** Palmprints: **Yes / No**

Mode of Identification: **DL** **Family** **Friend** **Fingerprints** **Other:** _____

Body Bag Tag #: _____ Locked By: _____ @ _____ **AM / PM**

Person #: _____ **Complainant** **Suspect** **Witness** **Other** _____

Name: _____ Alias: _____

Race: _____ Sex: _____ D.O.B.: ____ / ____ / ____ Height: _____ Weight: _____

Drivers License #: _____ State: _____ Social Security #: _____ / _____ / _____

Transported from Scene: **Yes / No** Transported To: _____

Hands Bagged: **Yes / No** Clothes Saved: **Yes / No**

Evidence Exemplars Collected

Fingernail Scrapings: **Yes / No** Fingernail Cuttings: **Yes / No** Head Hair Combed: **Yes / No**

Pulled Head Hair: **Yes / No** Pubic Hair Combed: **Yes / No** Pulled Pubic Hair: **Yes / No**

S.E.M. Kit: **Yes / No** Saliva Sample: **Yes / No** Fingerprints: **Yes / No** Palmprints: **Yes / No**

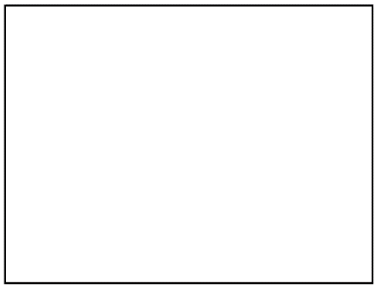
Mode of Identification: **DL** **Family** **Friend** **Fingerprints** **Other:** _____

Body Bag Tag #: _____ Locked By: _____ @ _____ **AM / PM**

Case #: _____

Description of Deceased

Position of Body: _____



Physical Description: _____

Tattoos: _____

Scars: _____

Clothing: _____

Jewelry: _____

Wounds: _____

Case #: _____

Description of Deceased - (continued)

Decomposition: _____

_____

_____

Insect / Animal Activity: _____

_____

_____

Petechial Hemorrhaging: **Yes / No** Blanching: **Yes / No**

Rigor Mortis: **Yes / No** Area(s): _____

Lividity: **Yes / No** Area(s): _____

Marbling: **Yes / No** Skin Slippage: **Yes / No** Ears Bleeding: **Yes / No**

Foaming: **Yes / No** * **Mouth / Nose** Blood Swabs Collected: **Yes / No**

Infant Deaths

Core Temperature: _____ Taken By: _____ Time: _____ **AM / PM**

Formula: **Dry / Liquid** Pediatrician / Doctor: _____

Recent Illness: **Yes / No** * Type: _____

Family History of S.I.D.S.: **Yes / No** Clothed: **Yes / No** Type of Clothing: _____

_____

Attempt to Render Aid: **Yes / No** By Whom: _____

Family History / Additional Information: _____

_____

_____

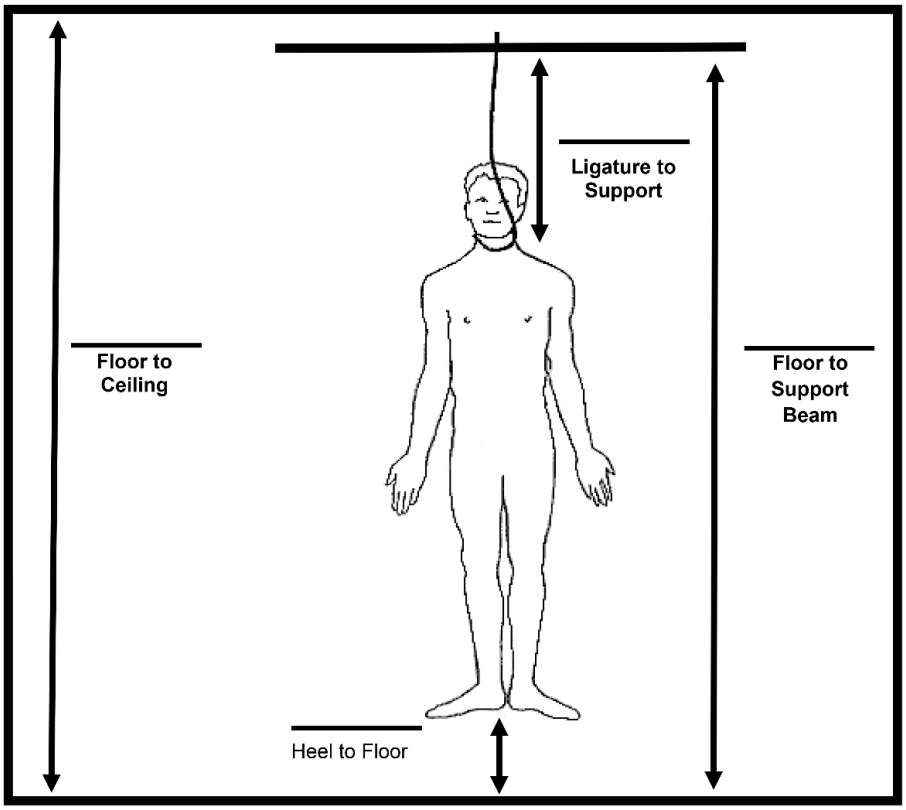
_____

_____

_____

Case #: _____

Hanging Deaths



Autopsy Attended: Yes / No **Autopsy** SD Cards: _____

Date of Autopsy: _____ Case Identifier: _____

Attending Physician: _____ Autopsy Assistant: _____

Start Time: _____ Finish Time: _____

Cause of Death: _____ Manner of Death: _____

Additional Information: _____

_____

Case #: _____

Firearms

Weapon(s) Involved: **Yes / No** Type of Weapon(s) Involved: _____

_____

Make: _____ Model: _____ Caliber: _____ Loaded: **Yes / No**

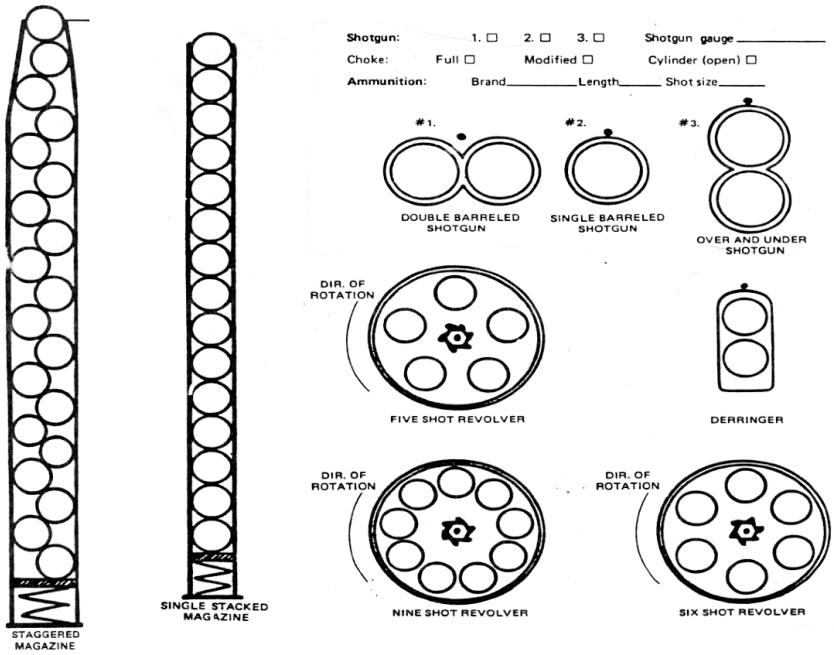
Serial #: _____ Type: _____ Safety: **Yes / No**

Recovered Bullet(s): **Yes / No** Number: _____ **On / Off**

Recovered Fired Casing(s): **Yes / No** Number: _____

Recovered Unfired Cartridge(s): **Yes / No** Number: _____

Blood on Exterior: **Yes / No** Blood in Interior: **Yes / No**



Laboratory Notes: _____

_____

_____

Issued by: Quality Manager Issue Date: 8/23/2018
MCSO Form # CSILOG Page ___of ___ Initials:_____ Revision 1

Case #: _____

Officer Involved Shooting

Officer's Name: _____ Agency: _____

Unit #: _____ Badge #: _____ Firearm Make: _____

Model: _____ Caliber: _____ Serial #: _____

Type: _____ FA Item #: _____ Time Received: _____ **AM / PM** Time Returned: _____ **AM / PM**

Safety Position: _____ Additional Notes: _____

_____

Cartridges in Firearm:

Magazine + Chamber: **+** Magazine Capacity: **+ 1** Cylinder: ___ / ___ Shot Revolver

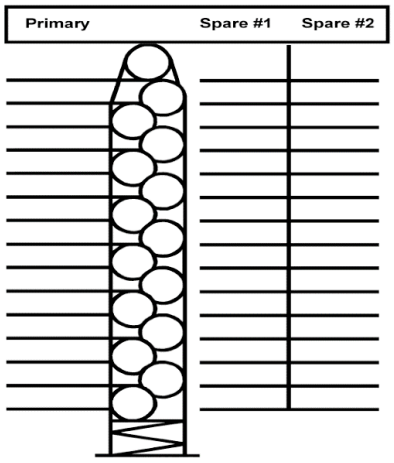
Ammunition Brand(s): _____

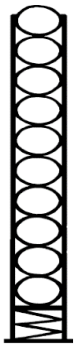
Spare Magazine(s)

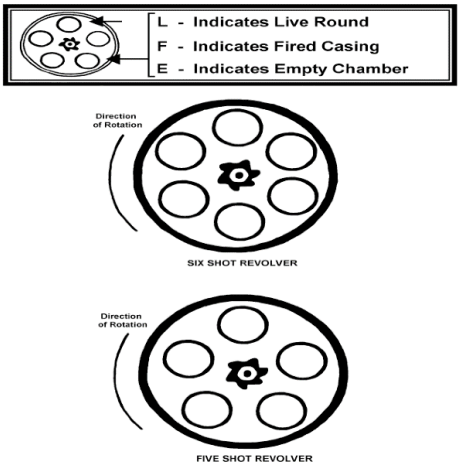
Spare Magazine #1: _____ Capacity: _____ Ammunition Brand(s): _____

Spare Magazine #2: _____ Capacity: _____ Ammunition Brand(s): _____

Spare Magazine #3: _____ Capacity: _____ Ammunition Brand(s): _____







Was Officer given a firearm at the scene? **Y / N** Date / Time Received: _____

CI #: _____ # Mags: _____ Loaded? **Y / N** Date / Time Returned: _____

Was Officer carrying a backup firearm: **Yes / No** **(If yes, use separate worksheet)**

Case #: _____

Vehicles

Vehicle(s) Involved: **Passenger Car** **Truck** **SUV** **Commercial Vehicle** **Motorcycle**

Make: _____ Model: _____ Year: _____ Color: _____

License: _____ State: _____ VIN: _____

Doors: **Open / Closed** Engine: **Hot** **Warm** **Cool** **Cold**

Running: **Yes / No** Windows: **Up / Down / NA** Condensation: **Yes / No**

Door / Window Condition (open / closed / locked / unlocked & which): _____

_____

Condition / Damage / Contents: _____

_____

Blood Evidence - Exterior: **Yes / No** Blood Evidence - Interior: **Yes / No**

Processed at Scene: **Yes / No** Investigative Tow: **Yes / No**

Towed By: _____ To: _____

Vehicle(s) Involved: **Passenger Car** **Truck** **SUV** **Commercial Vehicle** **Motorcycle**

Make: _____ Model: _____ Year: _____ Color: _____

License: _____ State: _____ VIN: _____

Doors: **Open / Closed** Engine: **Hot** **Warm** **Cool** **Cold**

Running: **Yes / No** Windows: **Up / Down / NA** Condensation: **Yes / No**

Door / Window Condition (open / closed / locked / unlocked & which): _____

_____

Condition / Damage / Contents: _____

_____

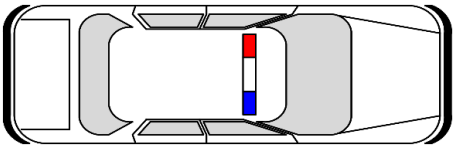
Blood Evidence - Exterior: **Yes / No** Blood Evidence - Interior: **Yes / No**

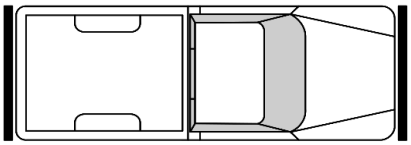
Processed at Scene: **Yes / No** Investigative Tow: **Yes / No**

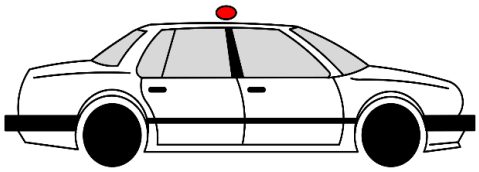
Towed By: _____ To: _____

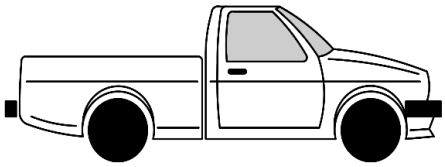
Case #: _____

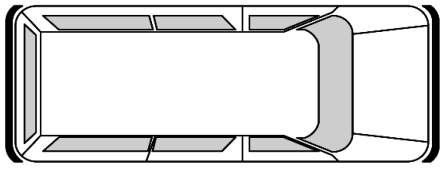
Vehicles - (continued)

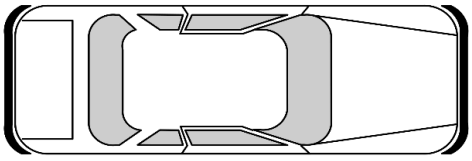


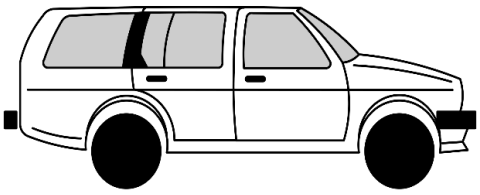


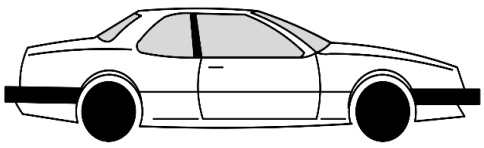












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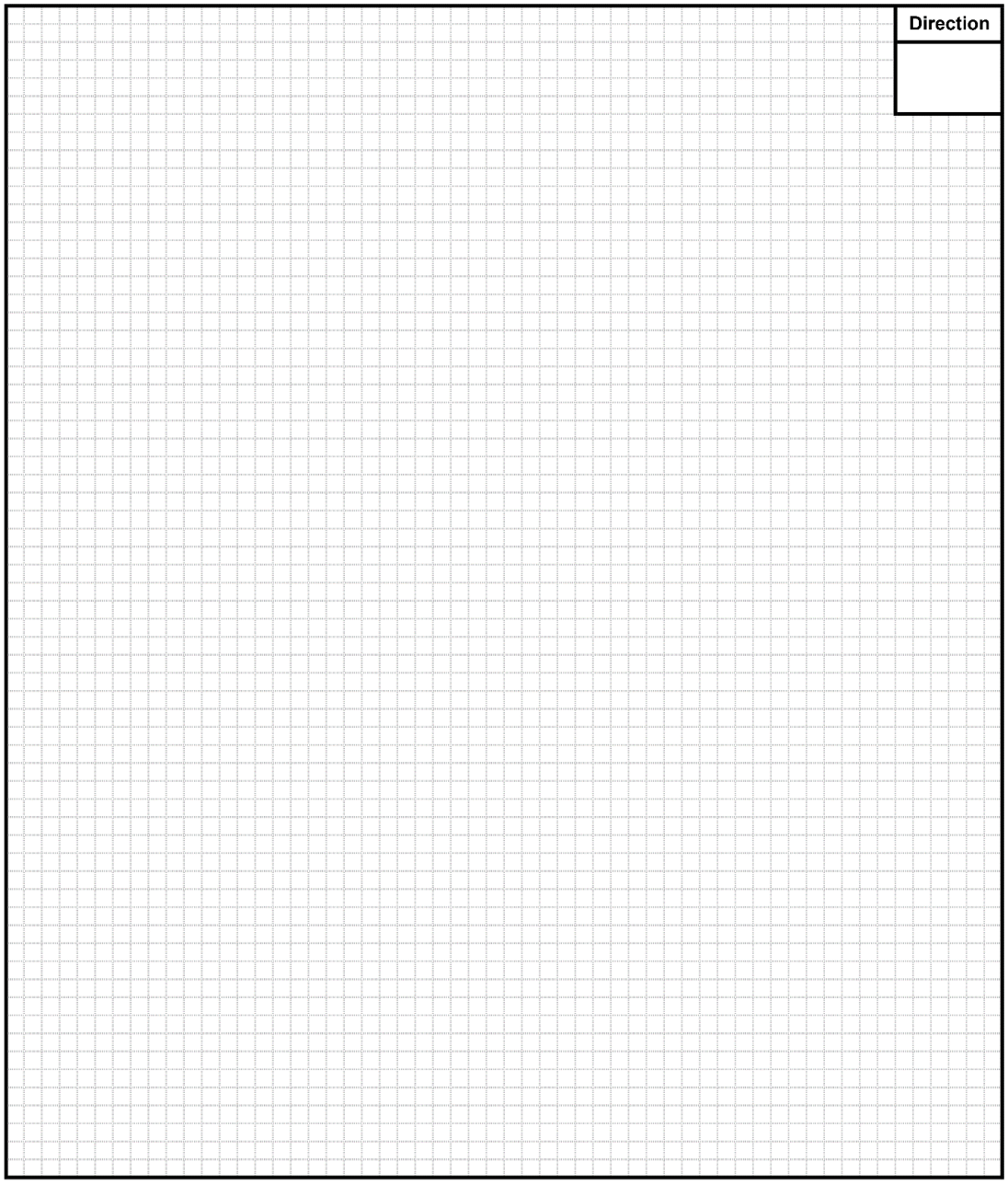
MCSO Form # CSILOG

Page ___of ___ Initials:_____

Issue Date: 8/23/2018
Revision 1

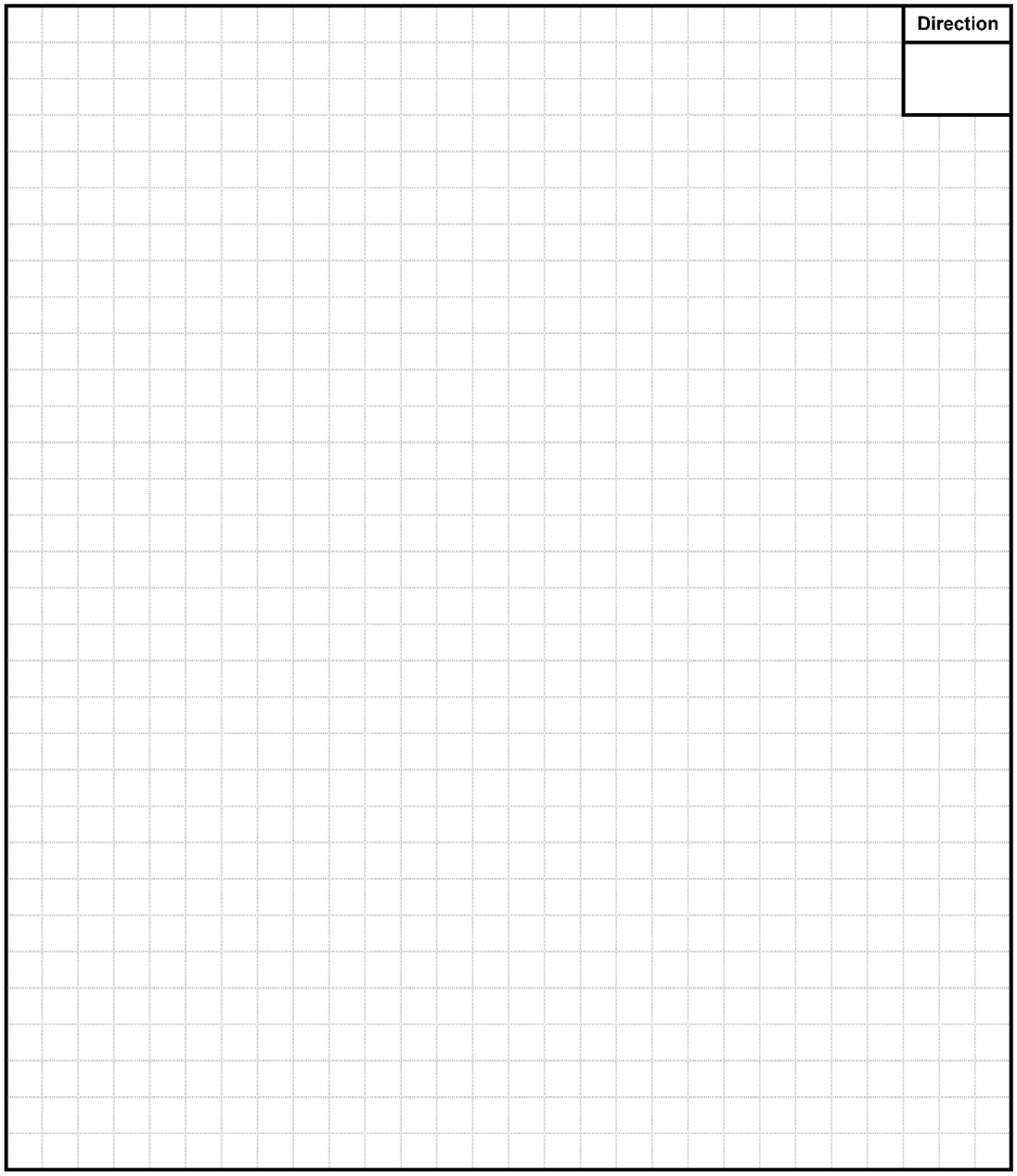
Case #: _____

Rough Sketch



Case #: _____

Rough Sketch



Case #: _____

Additional Field Notes

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MCSO Form # CSILOG

Page ___of ___ Initials:_____

Issue Date: 8/23/2018
Revision 1

Case #: ____________________

Legend

Object	Identifier	X	Y	Z

Issued by: Quality Manager
MCSO Form # CSILOG

Page ___of ___ Initials:_____

Issue Date: 8/23/2018
Revision 1

Case #: _____ **SD Cards:** _____

Evidence Inventory Log

Exhibit	Quantity	Evidence Collected	Origin Location
1			
2			
3			
4			
5			
6			
7			
8			
9			
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			
0			

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MCSO Form # CSILOG

Page ___of ___ Initials:_____

Issue Date: 8/23/2018
Revision 1

Case #: _____

Crime Scene Checklist

	Scene	Y	N
1	Initial Photographs		
2	Scene Video		
3	Body / Wounds Photographed		
4	Latent Print Processing		
5	Latents Photographed		
6	SEM Kit Administered		
7	Firearm Related Evidence Collected		
8	Weapon(s) Recovered		
9	Weapon(s) Charted		
10	Victim(s) Clothing Collected		
11	Suspect(s) Clothing Collected		
12	DNA Evidence Recovered - Unknown		
13	DNA Evidence Recovered - Known		
14	Vehicle(s) Investigative Tow		
15	Tow Packet Completed		
16	Vehicle Processed at Scene		
17	Footwear / Tire Tracks Photographed		
18	Footwear / Tire Tracks Casted		
19	Scene Diagram / Measurements		
20	Evidence Log Sheet(s) Completed		
21	Exiting Photographs		
22	Final Walk Thru with Detectives		

	Crime Laboratory	Y	N
1	DNA Samples Collected		
2	Trace Samples Collected		
3	Patent Prints Photographed		
4	Latent Print Processing		
	Conventional Methods		
	Chemical Methods		
	Blood Reagents		
5	Developed Prints Photographed		
6	Latent Examinations		
7	Latent Prints Identified		
8	Firearm / Tool Mark Examination		
9	Firearm / Tool Mark Identified		
10	Known Standards Collected		
	DNA (Blood / Saliva)		
	Hair		
	Fingernail Scrapings		
	Footwear		
	Tire Track		
	Handwriting		
11	Review with Detectives		

	Autopsy	Y	N
1	Attended Autopsy		
2	Photographed Body		
3	Charted Wounds		
4	Recovered Samples (Known)		
	DNA		
	Hair		
	Fingernail		
5	Clothing Collected		
6	Projectile(s) / Foreign Objects		
7	Finger / Palm Prints Taken		
8	Finger / Palm Prints Searched		
9	Record Found / ID Made		
10	Notifications Made		

	Outside Laboratory Submission	Y	N
1	DNA		
2	Trace		
3	Firearm / Tool Mark		
4	Distance Determination		
5	Footwear / Tire Mark		
6	Latent Print		
7	Questioned Document		
8	Drug Analysis		

Issued by: Quality Manager
MCSO Form # CSILOG

Page ___of ___ Initials:_____

Issue Date: 8/23/2018
Revision 1

Appendix C:
Checklists for Specific Crimes

Robbery/Aggravated Robbery (Penal Code Sec. 29.02 and Penal Code Sec. 29.03):

1. Plan your tactical response to a robbery in progress
2. Arrive safely and assume possibility of shootout
3. Observe as you approach
4. Ensure scene is safe for police and civilians
5. Avoid hostage situation if possible
6. Establish the elements of a robbery
7. Physical description/right/left handed
8. Conduct a thorough crime scene investigation
9. Fingerprint everywhere they touched
10. Actual verbiage; what force was threatened?
11. The note; preserve the prints
12. How many? Organized?
13. What property was taken? (be specific)
14. Weapon description
15. Interview of witnesses and victims (separately)
16. Canvass the neighborhood
17. Immediate broadcast of information
18. Robber's M/O (time, disguises, weapon, voice, peculiarities, etc.)
19. Surveillance cameras, if any
20. Getaway vehicle and direction of travel
21. Any counter surveillance seen?
22. Check immediate area for discarded evidence
23. Preserve all evidence for prints.

Burglary (Penal Code Sec. 30.02):

1. Observe as you approach
2. Establish the elements
3. Work as any other crime scene (thoroughly)
4. Identify entry/exit points

5. Tool marks/pry marks
6. Fingerprints/fiber transfer evidence
7. Vehicle description/tire impressions
8. Footwear impressions
9. Traffic tickets issued in area/time frame
10. Interview neighbors/any solicitors?
11. Had any visitors lately?
12. Identify the window of opportunity
13. Pawn shops/tickets; usual sources for recovering property
14. Specific nature and value of items taken (serial numbers)
15. What was not taken?
16. How much destruction to the interior?
17. Profile the scene (juveniles vs. professional)
18. Interview the victim thoroughly, get a detailed description of the property taken.

Sexual assault/Aggravated Sexual Assault (Penal Code Sec. 22.011 and Penal Code Sec. 22.021):

1. Determine if victim knows suspect
2. If suspect is known, find and arrest them.
3. Provide medical assistance
4. Carefully interview the victim
5. Reassure the victim you are there to help
6. If the victim requests a female officer, get one
7. Get victim to hospital as soon as possible
8. See that rape kit is performed
9. Interview the medical/EMS personnel at hospital
10. Collect the evidence available at the hospital (victim signed release)
11. Preserve, work, and photograph the crime scene
12. Be patient, understanding, empathetic, etc. toward the victim
13. Persuade the victim not to wash or clean themselves.
14. Locate and interview any witnesses in the area
15. Suspect description/weapons (did suspect bring the weapon?)
16. Clothing-victim's and suspect's (if any left behind)
17. Ensure victim removes clothing over clean white sheet
18. Bedding-any stains/pubic hair/trace evidence

19. Entry/exit points-check exterior windows carefully (voyeurism?)
20. Any footprints or other evidence outside?
21. From victim, get suspect's physical, verbal, and sexual behavior
22. Did the suspect take precautions to prevent detection?
23. Were any personal items of the victim taken and what were they?
24. M O: angry? violent? apologetic? inquisitive? need reassurance?
25. Photograph the victim's injuries
26. Photograph and collect any evidence that shows force was used
27. Re-interview the victim in two to five days (be cautious)
28. Treat all reports of sexual assault as real until known otherwise.

Assault/Aggravated Assault (Penal Code Sec. 22.01 and Penal Code Sec. 22.02):

1. Ensure the scene is safe for officers and others
2. Provide medical attention if necessary
3. Examine the victim for defensive wounds
4. Does the victim know the suspect?
5. Do the victim's wounds match the story they are telling?
6. Suspect description
7. Work the crime scene
8. Photos of injuries and surroundings
9. Identify the weapon(s) if applicable
10. Thorough interview of victim/witnesses
11. Search immediate area for evidence
12. Was it mutual combat?
13. Were the suspect's actions legally justified?
14. What was the suspect's intent? what did they say?
15. Was the suspect physically capable of committing the act?
16. Did the elements of aggravated assault exist?
17. Is this matter civil or criminal?
18. Apply family violence procedures, if applicable
19. Obtain waiver for medical records if applicable
20. Gather all trace and fiber evidence, if any
21. Photograph injuries again in 2-3 days

Motor Vehicle Theft (Penal Code Sec. 31.07):

1. Description of vehicle, year, make, color, body type
2. Identification of vehicle; VIN, motor number, LP (state and year)
3. Registered owner and legal owner w/addresses, phone numbers
4. Describe the circumstances at time of theft; date and time reported stolen, locked, unlocked, location where stolen from, key in ignition?
5. Was vehicle insured and by whom?
6. Was vehicle mortgaged? by whom? are payments current?
7. Did anyone have permission to use the vehicle? who? Been contacted?
8. Was owner involved in any criminal activity close to the time of theft?
9. How was vehicle taken? Has vehicle been recovered?
10. Any crimes committed in area where car was stolen?
11. Any witnesses see vehicle or suspect around vehicle?
12. Anything unusual about vehicle?
13. Does owner have any suspects?
14. What items were in the vehicle when stolen?
15. Have pawnshops been checked for items?
16. Is there any reason to believe it is a false report?

Arson (Penal Code Sec. 28.02):

1. Who first noticed the fire?
2. Who notified the authorities?
3. Who responded to the fire?
4. What was the color of the smoke and flame? (blue=alcohol, white=vegetable compound, hay, phosphorous, yellow/brownish=film, sulphur, hydrochloric acid, smokeless gunpowder, black=petroleum and petroleum products)
5. Where is fire's origin? More than one?
6. What material was used to ignite fire? (match, candle, cigarette lighter?)
7. Was there an explosion at any time?
8. Did the building explode inward or outward?
9. Did fire appear to be accelerated?
10. Were any accelerants found at scene? (papers, rags, gasoline, etc.)
11. What was the weather?
12. Was any unusual property destroyed?
13. Any obviously unusual circumstances?

14. Any property removed before the fire started?
15. Was anyone killed or injured? (determine cause of death?)
16. Any signs of forced entry?
17. Who had access to building?
18. Would anyone benefit from fire? Who?
19. Who owns property and how long have they owned it?
20. Will owner sign release of records document?
21. Was there insurance? How much?
22. Who is insurance payable to?
23. Which insurance company? Get copy of the policy and their report.
24. Does this owner have a history of fires? Criminal record?
25. Any suspicious persons or vehicles around before fire started?
26. Was the appropriate arson investigator notified?
27. Get a copy of all other investigator's report
28. Were photographs taken? Can you get a copy of them?

Recommended Reading/Sources

A Guide for Explosion and Bomb Scene Investigation. Available on-line at http://www.ojp.usdoj.gov/nij/pubs-sum/181869.htm.

A Resource Guide to Law Enforcement, Corrections, and Forensic Technologies. Available on-line at http://www.ncjrs.org/pdffiles1/nij/186822.pdf.

American Academy of Forensic Science, http://www.aafs.org.

American College of Forensic Examiners, http://www.acfe.com.

American Society of Crime Laboratory, http://www.ascld.org.

Association of Crime Scene Reconstruction, http://www.acsr.com.

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Fire and Arson Scene Evidence: A Guide for Public Safety Personnel. Available on-line at http://www.ojp.usdoj.gov/nij/pubs-sum/181584.htm.

Flammable and Combustible Liquid Spill/Burn Patterns. Available on-line at http://www.ojp.usdoj.gov/nij/pubs-sum/186634.htm.

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The Future of Forensic DNA Testing: Predictions of the Research and Development Working Group. Available on-line at http://www.ojp.usdoj.gov/nij/pubs-sum/183697.htm.

Understanding DNA Evidence: A Guide for Victim Service Providers. Available on-line at http://www.ojp.usdoj.gov/nij/pubs-sum/BC000657.htm.

What Every Law Enforcement Officer Should Know About DNA Evidence, Brochure. Available on-line at http://www.ojp.usdoj.gov/nij/pubs-sum/000614.htm.

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