Crime Scene Investigation and Evidence
Crime-Scene Investigation and Evidence Collection
By the end of this unit you will be able to:

2. Identify four examples of trace evidence.
3. Distinguish between direct and circumstantial evidence.
4. Summarize the seven steps (seven S’s) of a crime-scene investigation.
Crime-Scene Investigation and Evidence Collection
By the end of this unit you will be able to:

5 Explain the importance of securing the crime scene.
6 Identify the methods by which a crime scene is documented.
7 Demonstrate proper technique in collecting and packaging trace evidence.
8 Explain what it means to map a crime scene.
Vocabulary

- chain of custody
- circumstantial evidence
- class evidence
- crime-scene investigation
- crime-scene reconstruction
- datum point
- direct evidence
- first responder
- individual evidence
- paper bindle
- primary crime scene
- secondary crime scene
- trace evidence
- triangulation
Principle of Exchange

- Locard's Principle of Exchange
  - When a person comes in contact with an object or another person, a cross-transfer of physical material can occur.
  - The *intensity*, *duration*, and *nature* of the entities and contact determine the extent of the transfer.
Types of Evidence

- Direct evidence or Testimonial Evidence
  - First-hand observations/ statements
  - Remember problems can occur with eyewitness accounts

- Physical Evidence:
  - Indirect evidence found at a crime scene. Toolmarks, shoeprints, fingerprints, etc.
    - Generally more reliable
    - Can link suspects to crime scene
    - Can allow reconstruction of crime scene
    - Can refute or corroborate testimony
FACES—a composite program by InterQuest
Types of Evidence (continued)

- Class evidence
  - Narrows an identity to a group of persons or things

- Individual evidence
  - Narrows an identity to a single person or thing
Transient Evidence

**Odor**—putrefaction, perfume, gasoline, urine, burning, explosives, cigarette or cigar smoke

**Temperature**—surroundings, car hood, coffee, water in a bathtub, cadaver

**Imprints and indentations**—footprints, teeth marks in perishable foods, tire marks on certain surfaces
Pattern Evidence

- Markings, indentations, deposits, fractures, striations.
Examples of Conditional Evidence

**Light**—headlight, lighting conditions, lights on or off

**Smoke**—color, direction of travel, density, odor

**Fire**—color and direction of the flames, speed of spread, temperature and condition of fire

**Location**—of injuries or wounds, of bloodstains, of the victim’s vehicle, of weapons or cartridge cases, of broken glass

**Vehicles**—doors locked or unlocked, windows opened or closed, radio off or on, odometer mileage

**Body**—position and types of wounds; rigor, livor, and algor mortis

**Scene**—condition of furniture, doors and windows, any disturbance or signs of a struggle
The Crime-Scene Investigation Team

- Police officers
- Crime-scene investigators
- Medical examiners
- Detectives
- Specialists
The Seven S’S of Crime-Scene Investigation

1. Securing the Scene
   • First responder
2. Separating the Witnesses
   • Ask questions
3. Scanning the Scene
   • Primary or Secondary location?
4. Seeing the Scene
   • Take photos
   • Triangulation
Figure 2-10  Measuring the position of evidence.
The Seven S’S of Crime-Scene Investigation (continued)

5. Sketching the Scene
   • Date, Location, SCALE, direction of North included

6. Searching for Evidence

7. Securing and Collecting Evidence
   • Bindles for dried biological evidence
   • Airtight unbreakable containers for liquids and arson remains
   • Chain of Custody
Figure 2-4 *Four crime-scene search patterns.*

- **Grid**
- **Linear**
- **Quadrant or Zone**
- **Spiral**
Figure 2-5 Thermal image of the alleged Boston Marathon bomber, Dzhokhar Tsarnaev, hiding in a boat just before being captured.
Packaging Evidence

- The paper bindle is ideal packaging for small, dry, trace evidence.

Figure 2-6 Demonstration of packaging of dry evidence.

a. Placement of evidence.

b. Place dried evidence on bindle paper.

c. Secure bindle in labeled evidence bag using stick-on label.

d. Write the collector’s signature across the bag’s taped edge.
Chain of Custody

Figure 2-7 Chain-of-custody procedures.

a. Original evidence bag.

b. Opened evidence bag maintaining signature on first seal.

c. Original evidence bag with uncut seal and signature, updated chain-of-custody log in a new sealed and signed evidence bag.
1. Bag the evidence
   Add identification
   Seal it
   Sign it across the sealed edge

2. Sign over to a lab technician
   Open bag on non-sealed edge

3. Return items to the evidence bag
   Seal evidence bag in another bag
   Sign the evidence log
Mapping the Outdoor Crime Scene

o Datum Points and Subdatum Points

**Figure 2-8** Establishing a crime scene.
Mapping the Outdoor Crime Scene (continued)

- Marking Evidence Collecting Limits

**Figure 2-9** Evidence collecting limits.
Figure 2-11 Probing a collection site for evidence belowground.
Mapping the Outdoor Crime Scene (continued)

- Measuring and Marking Evidence Positions

Figure 2-12 Establishing the location of evidence at the collection site.
Analyze the Evidence

- Forensic lab technicians are specialized to process only one type of evidence.

**Figure 2-13** A modern forensics laboratory.
Crime-Scene Reconstruction

- Crime scene reconstruction involves:
  - Forming a hypothesis of the sequence of events from before the crime was committed through its commission
  - Comparing the evidence to witnesses statements
- Investigators need to maintain an open mind as they examine all possibilities.
Staged Crime Scenes

- Commonly staged types of crime scenes include:
  - Arson
  - Murder staged to look like a suicide
  - Burglary