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Contents

| Unit I — An Introduction and the History of Forensic Science | | Student Edition Ref: |
|--|---|----------------------|
| Section A | What is Forensic Science? | 9N/A |
| Section 1 | Laboratory Safety | 116 |
| Section 1 | Laboratory Safety | 13N/A |
| Section 2 | Definition of Forensic Science | 149 |
| Section 3 | Areas of Forensic Science | 1510 |
| Section 4 | Investigation: Observation and Inference | 2015 |
| Section 5 | Investigation: Crime Scene Reconstruction Using Observation and Inference | 2419 |
| Section 6 | Investigation: Classification and Individualisation | 2722 |
| Unit II — Crime Scene Processing | | Student Edition Ref: |
| Section A | Crime Scene Processing Notes | 31N/A |
| Section 1 | Investigation: Crime Scene Processing | 3926 |
| Section 1 | Investigation: Crime Scene Processing (Teacher Edition only) | 43N/A |
| Section 2 | Investigation: Evidence Packaging | 4530 |
| Section 3 | Investigation: Determining the Difference in Appearance and Uses of the Rough and Final Sketch of a Crime Scene | 4833 |
| Section 4 | Investigation: Crime Scene Documentation | 5136 |
| Section 5 | Investigation: Defining Chain of Custody for a Piece of Evidence (Teacher Edition only) | 56N/A |
| Section 5 | Investigation: Defining Chain of Custody for a Piece of Evidence | 5841 |
| Section 6 | Exam: History and Crime Scene Investigation | 60N/A |
| Section 7 | Exam Answers: History and Crime Scene Investigation | 68N/A |
| Unit III — Finger Print Analysis | | Student Edition Ref: |
| Section A | Fingerprint Pattern Notes | 73N/A |
| Section 1 | Investigation: Patterns, Cores, Deltas and Types | 7443 |
| Section 2 | Fingerprint Patterns Notes | 7746 |
| Section 3 | Patterns Exhibiting Deltas and Cores Notes | 7847 |
| Section 4 | Ridge Characteristics and Friction Skin Notes | 7948 |
| Section 5 | Processing Inked Fingerprints Notes | 8049 |
| Section 6 | Investigation: Inked Prints | 8150 |
| Section 7 | Investigation: Individualisation of Fingerprints | 8453 |
| Section 8 | Investigation: Visualisation Techniques - Physical and Chemical Changes | 8756 |
| Section 9 | Investigation: Lifting, Preserving and Individualising Processed Fingerprints | 9059 |
| Section 9 | Investigation: Lifting, Preserving and Individualising Processed Fingerprints (Teacher Edition only) | 94N/A |

Contents

| | | | |
|-------------------|--|-----|----------|
| Section 10 | Investigation: Cyanoacrylate Fuming of Latent Fingerprints | 95 |63 |
| Section 11 | Investigation: AFIS - Automated Fingerprint Identification Systems | 98 |66 |
| Section 12 | Exam: Fingerprint Analysis | 102 |N/A |
| Section 13 | Exam Answers: Fingerprint Analysis | 107 |N/A |

Unit IV — Firearms Analysis

Student
Edition Ref:

| | | | |
|------------------|---------------------------------------|-----|----------|
| Section 1 | Firearms Analysis | 109 |71 |
| Section A | Rifling Notes | 112 |N/A |
| Section 2 | Evidence Collection | 113 |74 |
| Section 3 | Investigation: Rifling | 114 |75 |
| Section 4 | Exam: Firearms Analysis | 115 |N/A |
| Section 5 | Exam Answers: Firearms Analysis | 119 |N/A |

Unit V — Drug Analysis

Student
Edition Ref:

| | | | |
|------------------|---|-----|----------|
| Section A | Drug Analysis Notes | 121 |N/A |
| Section 1 | Processing a Powdered Drug Sample Notes <small>(Teacher Edition only)</small> | 125 |N/A |
| Section 1 | Processing a Powdered Drug Sample Notes | 126 |77 |
| Section 2 | Investigation: Microscopic Analysis of Known and Unknown Powders | 132 |83 |
| Section 3 | Investigation: Qualitative Test - Microcrystalline Test | 136 |87 |
| Section 4 | Investigation: Presumptive Test - Colour Test | 139 |90 |
| Section 5 | Investigation: Quantitative Analysis Through Extraction | 142 |93 |
| Section 6 | Exam: Drug Analysis | 145 |N/A |
| Section 7 | Exam Answers: Drug Analysis | 149 |N/A |

Unit VI — Hair and Fibre Analysis

Student
Edition Ref:

| | | | |
|------------------|--|-----|----------|
| Section A | Hair Analysis Notes | 151 |N/A |
| Section 1 | Investigation: Microscopic Analysis of the Medulla | 154 |97 |
| Section 2 | Investigation: Examination of Hair Scale Patterns and Hair Roots | 159 |102 |
| Section B | Fibre Analysis Notes | 163 |N/A |
| Section 3 | Investigation: Fabric Examination | 166 |106 |
| Section 4 | Investigation: Microscopic Analysis of Fibres | 168 |108 |
| Section 5 | Exam: Hair and Fibre Analysis | 173 |N/A |
| Section 6 | Exam Answers: Hair and Fibre Analysis | 178 |N/A |

Contents

| Unit VII — Bloodstain Pattern Analysis | | Student Edition Ref: |
|--|--|----------------------|
| Section A | Bloodstain Pattern Analysis Notes | 180N/A |
| Section 1 | Investigation: Bloodstain Pattern Analysis | 188114 |
| Section 2 | Investigation: Direction of Travel, Area of Convergence and Angle of Impact | 190116 |
| Section 2 | Investigation: Direction of Travel, Area of Convergence and Angle of Impact (Teacher Edition only) | 193N/A |
| Section 3 | Follow-up Investigation: Direction of Travel, Area of Convergence and Angle of Impact | 194119 |
| Section 3 | Follow-up Investigation: Direction of Travel, Area of Convergence and Angle of Impact (Teacher Edition only) | 196N/A |
| Section 4 | Investigation: Effect of Distance, Surface Type and Angle | 197121 |
| Section 5 | Investigation: Small Scale 3-Dimensional Representation of Bloodstain Pattern | 202126 |
| Section 6 | Exam: Bloodstain Pattern Analysis | 206N/A |
| Section 7 | Exam Answers: Bloodstain Pattern Analysis | 213N/A |
| Unit VIII — Document Analysis | | Student Edition Ref: |
| Section A | Document Analysis Notes | 216N/A |
| Section 1 | Investigation: Handwriting Analysis - Handwriting Development | 220131 |
| Section B | Handwriting Analysis - Handwriting Characteristics | 222N/A |
| Section 2 | Investigation: Handwriting Analysis - Ransom Letter Investigation | 224133 |
| Section 2 | Investigation: Handwriting Analysis - Ransom Letter Investigation (Teacher Edition only) | 228N/A |
| Section 3 | Investigation: Ink Analysis - Paper Chromatography..... | 229137 |
| Unit IX — Impression Evidence | | Student Edition Ref: |
| Section A | Impression Evidence Notes | 234N/A |
| Section 1 | Investigation: Differentiating Between Casts and Moulds | 237142 |
| Section 2 | Investigation: Tyre Track Analysis | 239144 |
| Section 3 | Investigation: Casting Impression on a Small Scale | 244149 |
| Section 4 | Investigation: Casting Impression on a Large Scale | 246151 |
| Section 5 | Exam: Document Analysis and Impression Evidence | 248N/A |
| Section 6 | Exam Answers: Document Analysis and Impression Evidence | 254N/A |
| Unit X — DNA Analysis | | Student Edition Ref: |
| Section A | DNA Analysis Notes | 258N/A |
| Section B | DNA Background Notes | 263N/A |
| Section 1 | Investigation: Preparation for DNA Analysis | 264154 |

Introduction

Television! For over 50 years parents and the public at large have blamed television for the creation of self-indulgent, couch hugging youngsters. They say the youth of today have simultaneously developed shrinking attention spans and expanding ideas of the need for every toy and game seen on TV.

But there is currently another phenomenon attached to television. In the past several years there seems to be an unquenchable thirst for crime investigation shows, both real-life and drama, prime time and syndication, factual and “enhanced” for the television audience and for those all-important ratings!

Science educators have been watching this phenomenon unfold as well. They have recognized that a perfect marriage of science concepts and skills with the “real world application” of science knowledge can be found in the area of forensic science. The students, now intensely interested in the field of using science to solve crimes, as portrayed in the crime scene investigation shows, find that they can carry out simulations of these investigations right in their school laboratories.

The Pedagogy

Scientific inquiry is at the heart of forensic science. In a forensic science course, students, just as the professionals in the field, are expected to develop testable hypotheses and create logical connections between the design of the experiment and the scientific concepts that underlie the situation. They carry out their investigations, collect and analyse data, formulate explanations, revising their hypothesis if necessary, re-work their investigation, and draw conclusions.

Knowledge — Students will have an opportunity to use the science knowledge they have already collected throughout their school experience, such as concepts in biology, geology, weather, chemistry, and physics as a basis for their continued investigations.

Skills — Students will use and refine already acquired science process skills such as observing, inferring, analysing, evaluating, as well as those technical skills specific to forensic investigation in order to solve the crimes.

Application — Students will discover that “real-world” science requires a great deal of creativity. They will be expected to take knowledge from all the fields of science, researching where necessary to fill any gaps, in order to make their own meaning about their tasks and come to conclusions about the investigation.

In addition, students will be using mathematics concepts, such as trigonometry as applied to trajectories, as another invaluable tool to aid in the explanation of particular crime scenes.

The premise of this course of study is that students have the knowledge and skills to solve problems. They may not, initially, have the knowledge to determine, for example, the exact location of the perpetrator based on the range of blood spatters. However, they have the knowledge and skills to creatively figure it out. They might have to work to do it, but they have the capacity and, if years of testing these lessons is any indication, they enjoy the challenge.

Forensic courses, both in school and in college, continue to grow in popularity just as forensic science continues to expand as a career. Students are recognising that all crimes are not solved in a one-hour segment, as on their favourite TV shows. But they are also recognising, through courses like this one, that forensic science offers a wide range of opportunities for chemists, biologists, geologists, physicists, artists, photographers, mathematicians, historians, and others who are interested in bringing arts and sciences together with criminal justice.

This series of books consists of a Teacher Edition and a Student Edition.

1. **Teacher Notes** — Detailed “teacher notes” are found at the beginning of each section of the book. Understanding that science teachers have different areas of expertise and that Forensic Science draws from many fields of science, notes have been included to provide background for each area.

These notes provide information about the science concepts and the application of the concepts to forensic investigation.

Teacher notes sections are organised as follows:

- Note sections that are in the Teacher Edition and **NOT** in the Student Edition are colour coded dark red and are identified by an alphabetical label.
- Investigation sections that are in both the Teacher Edition AND the Student Edition are colour coded blue and are identified by a numeric label. They match exactly in both editions and are cross referenced in the contents pages in the Teacher Edition.
- Where there is additional information specifically for the teacher within the investigation sections we have clearly identified these by colour coding them green.

Since the most effective way for students to learn this information is through hands-on investigations, these background notes are not provided in the student edition. When beginning a new section, it is recommended to have students engage in the introductory investigations first. Once those are completed, there may be a period of time in which the teacher provides elaboration on the concepts explored in the investigation. Background notes may be used to guide that discussion.

Since some investigations require the students to have specific knowledge before proceeding with the investigation, notes are provided before the activity in the Student Edition.

-
2. **Investigations** — Copies of the investigations contained in the Student Edition are duplicated in the Teacher Edition. Included are additional teacher tips on where to find specific materials and supplies, instructions on inexpensive ways to create solutions or provide materials necessary for a particular investigation, safety precautions, and areas which might cause confusion for students.

Contained within each unit are investigations that are designed to either deliver notes for key concepts in a captivating, non-didactic manner or guide the students to develop their own knowledge for key concepts through hands-on, real life applications.

3. **Examinations** — an exam is provided for each of the units and are colour coded black.
4. **Answer keys** — Embedded within the investigations and accompanying the unit exams are answer keys and are colour coded light red.

It should be noted that along with knowledge-based questions, for example types of fingerprints, most of the questions students are expected to complete require higher-order thinking skills. For this reason, several acceptable answers may be given in the answer key for a single question. The individual teacher, based on the students' scientific rationale, will be the best judge of the correctness of the statement.

5. **Student Handout Material** — Throughout the book you will see the word 'Handout' on the bottom of certain pages e.g., exam, exam answer sheets... Please feel free to photocopy these pages as handouts to your students. TPS Publishing Ltd. are happy for you to photocopy the Handout pages but please refrain from copying others – Thanks.

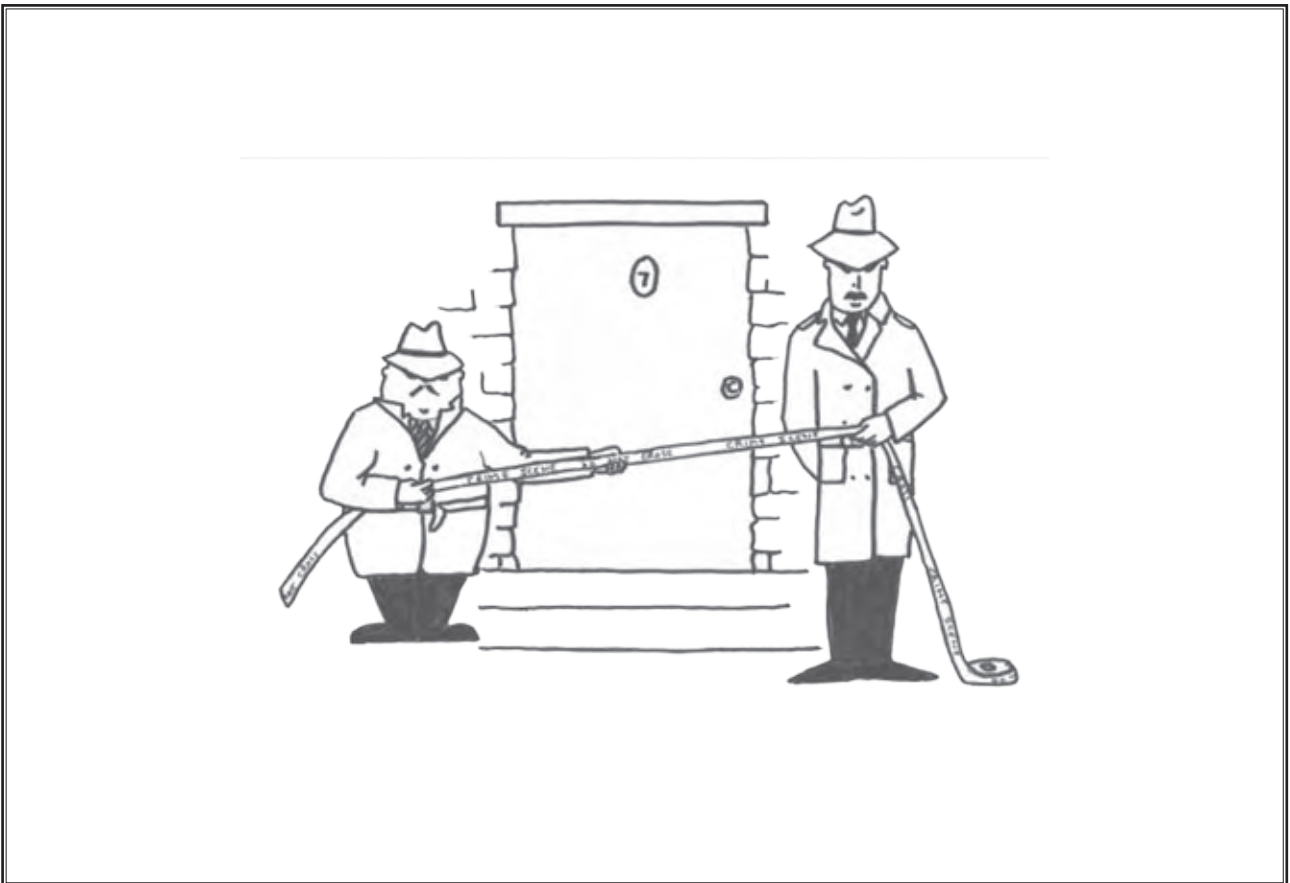
Good luck with the course...

The Authors



Unit II

Crime Scene Processing



Crime scene processing involves taking steps to ensure the methodical and lawful collection of information and evidence at a crime scene. Proper processing aids in the reconstruction of a crime and assists in the admissibility of evidence for court proceedings. Presented in this unit are investigations in which you will learn the steps used in processing a crime scene, the proper procedures for packaging evidence such as cartridge casings, fibres and bloody fabric, how to differentiate between and create rough and final sketches of a crime scene and develop an understanding of the chain of custody of evidence.

Section A — Crime Scene Processing Notes

• Crime scene processing involves taking steps to ensure the methodical and lawful collection of information and evidence at a crime scene.



• Proper processing aids in the reconstruction of a crime and assists in the admissibility of evidence for court proceedings.

The following steps are taken by Investigators when processing a crime scene:

1. Provide medical attention to injured persons. *
2. Secure the scene. *
3. Interview witnesses. *
4. Photograph the scene.
5. Record notes.
6. Sketch the scene.
7. Conduct a search.
8. Collect and package evidence.



* Steps 1, 2 and 3 are performed simultaneously as there is typically more than one investigator present.
If there is just **one investigator** present then the priority is to **provide medical attention**.

Overview of Steps

1. Provide medical attention to injured persons.

2. Secure the scene.

- a. This is the responsibility of the first officers that arrive at the scene.
- b. Post tapes, ropes and barricades around the perimeter of the scene.
- c. Exclude people who are not directly involved in the investigation. This avoids possible tampering of evidence.
- d. Record the names of all people involved.



Section A — Crime Scene Processing Notes

3. Interview witnesses.

- a. Record the following information in a note pad:
(Use the witness question sheet to help)
- Name of witness
 - Date of occurrence
 - Location
 - Give an account of the events of the crime.
- b. Remember, witnesses can:
- Provide answers to questions to help investigators reconstruct the crime.
 - Help corroborate information about the crime.
(e.g. Confirm or support facts that have come from other sources).
 - Provide information about the crime that evidence alone cannot.
(e.g. Details about the activities of the victim or suspects).



4. Photograph the scene.

- a. Start with close up shots of significant aspects of the scene
(use a ruler in all photographs for scale)
(e.g. a broken window, overturned table, drawers pulled from a desk.)
- b. Next, photograph key pieces of evidence.
(e.g. A suspected weapon, bloody fingerprint, stained clothing.)
- c. Lastly, take various photographs of the entire scene from wide angles.



5. Record notes.

- a. Notes should include:
1. A detailed description of the scene. (Notes serve to refresh Investigators' memories months or years after the crime.)
 2. Information that cannot be captured by photographs or included in sketches. e.g. unusual odour, time, weather, lighting.
 3. Information about how and when pieces of evidence were collected and who collected the evidence.
- b. Crime scene details can also be documented via a narrated video tape or tape recording. Both allow for more detailed notes and must be transcribed into a written document.

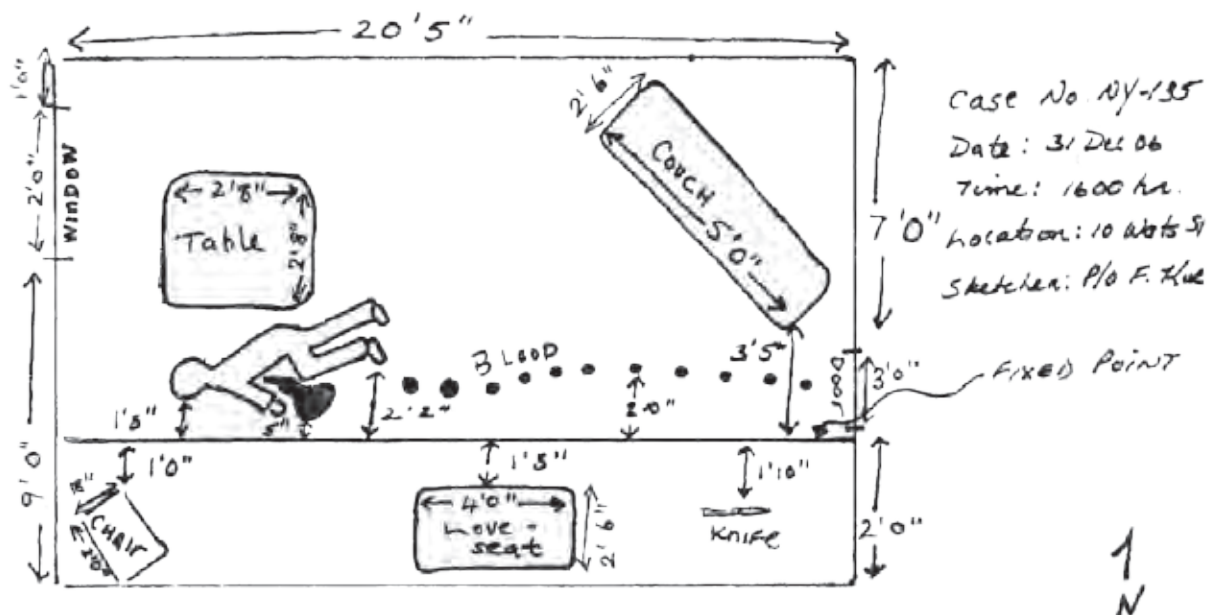


Section A — Crime Scene Processing Notes

6a. Sketch the scene — Rough Sketch.

1. Initial sketch of the scene that does not have to be neat and must be be as detailed as possible. (Serves to refresh the memories of Investigators months or years after the crime)
2. Should include the following:
 - a. "Fixed Points"- objects or locations that help provide scale in the sketch and represent points from which the distance of all important details in the scene can be measured. The Investigator can create a "fixed" point by drawing a line from which measurements can be taken (see sketch).
 - b. Labels on items in sketch. (e.g. doors, windows, pieces of evidence)
 - c. Accurate dimensions of objects in, and aspects of, the scene. (e.g. pieces of furniture/ windows)
 - d. Case information including, date, time and location of crime, case number, and name of sketcher.
 - e. Compass direction, North.

Example: Rough Sketch



Section A — Crime Scene Processing Notes

6b. Sketch the scene — Final Sketch.

1. The official sketch needs to be as clean in appearance as possible. It is used during court proceedings for jury viewing. It is imperative that the jury can read it easily and have no confusion. If a dimension is needed during court testimony, the investigator will refer to his/her rough sketch.



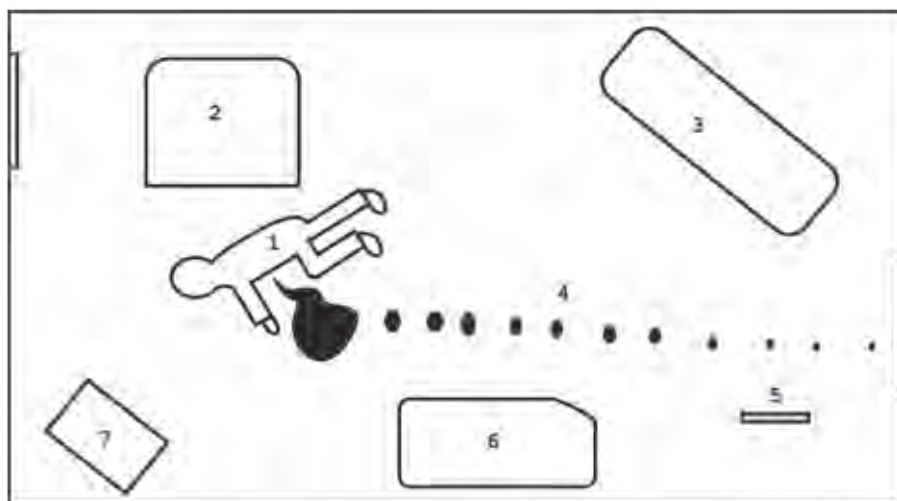
2. Should omit the following:
- a. Lines and numbers denoting dimensions
 - b. Labels



3. Should include the following:
- a. Numbers denoting objects and pieces of evidence
 - b. A legend reflecting the identification of the numbered items
 - c. Scale
 - d. Compass direction, North
 - e. A label showing, case number, date, time, location, name of sketcher.

4. Can be created via computerised sketching.

Example: Final Sketch



Case No. NY-135
Date 31 Dec 06
Time 1600hr
Location 10 Wats St.
Sketcher P/O F.Kurt

Legend
1. Body 4. Blood
2. Table 5. Knife
3. Couch 6. Loveseat
7. Chair

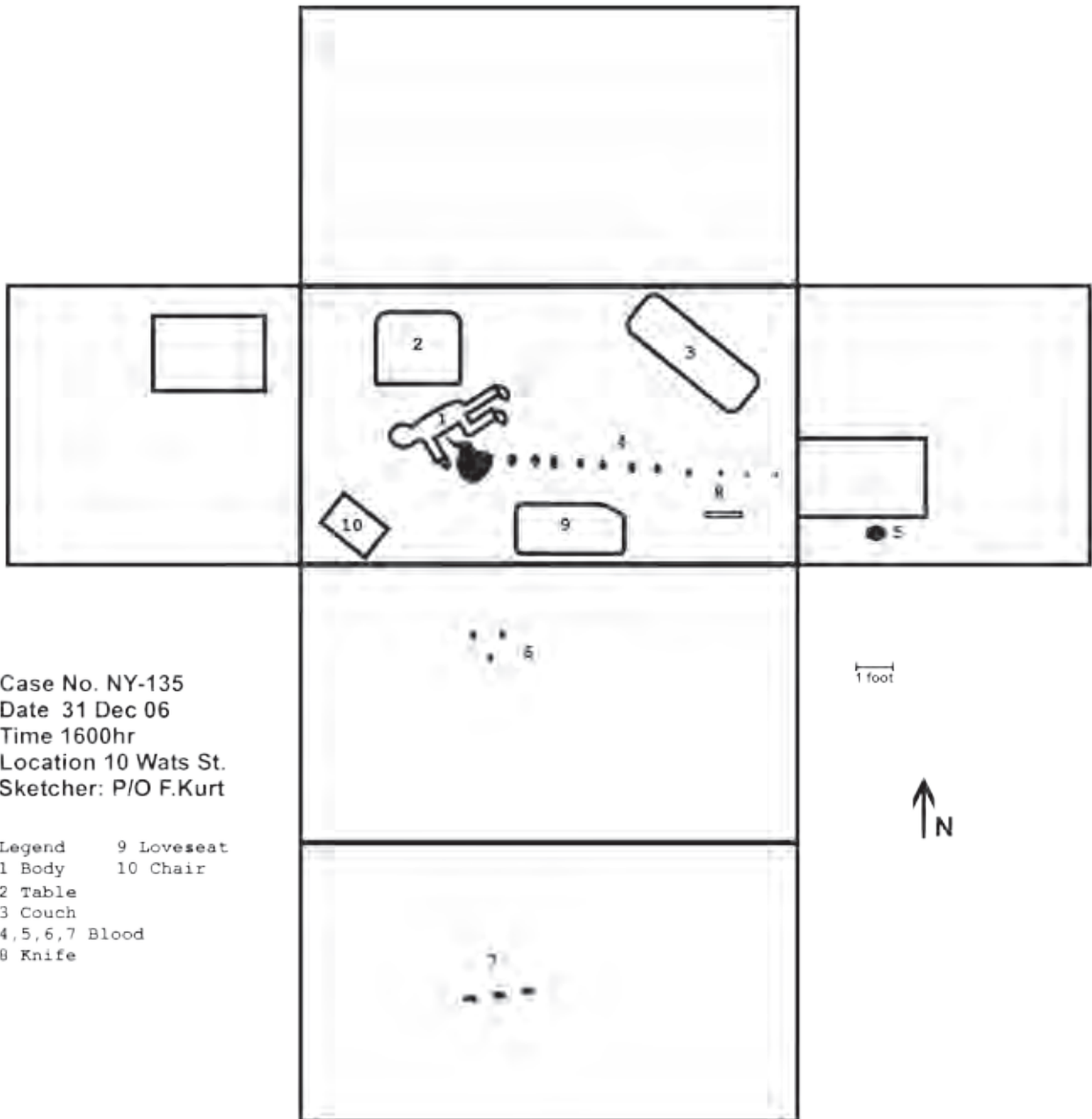
Scale  1 Foot
1
N

Section A — Crime Scene Processing Notes

6c. Sketch the scene — Two-dimensional sketch (Cross - Projection Sketch).

1. Incorporates walls and ceiling to reflect evidence, such as blood spatter, that may be present.

Example: Two Dimensional Sketch



Section A — Crime Scene Processing Notes

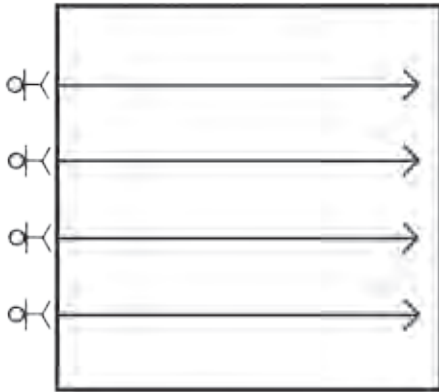
7. Conduct a search.

- a. Searching a scene allows for the following to be determined:
 1. Perpetrator's path of entry and exit.
 2. Locations of pieces of evidence.
- b. Examples of search patterns include:
 1. Line, Grid and Spiral that are typically used when searching large areas such as fields.
 2. Quadrant which is typically used when searching small areas such as a room.
(Note: The Spiral search method may also be used when searching a small area.)

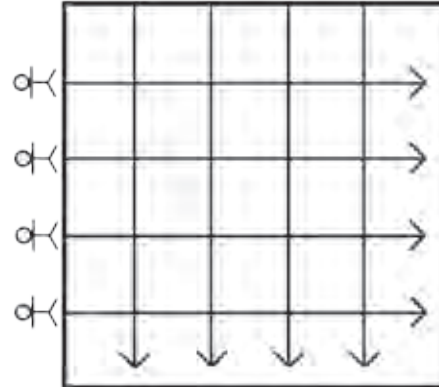


Example Search Patterns

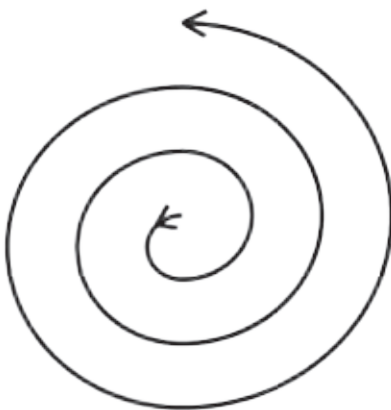
Line



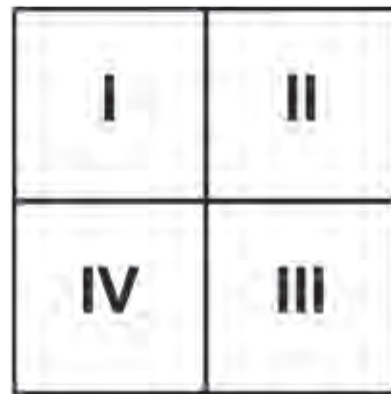
Grid



Spiral



Quadrant




Section A — Crime Scene Processing Notes


8. Collect and package evidence.

Proper collection and packaging helps to protect the evidence and ensure its integrity.


- a. Investigators should wear gloves and use forceps when necessary.
- b. Each item of evidence should be marked with the date and the Investigator's initials and packaged separately.
- c. The type of packaging is dependent on the nature of the evidence.
The following are some examples of evidence and the types of packaging they require:

 **Bullet/ casing** – Cardboard box or envelope


 **Powdered material (e.g. drug/poison)** – Plastic bag

 **Arson evidence (e.g. A piece of carpet soaked with gasoline)** – Air tight container such as Mason jar or paint can

 **Piece of glass** – Plastic vial

 **Item stained with biological fluid such as blood** – Paper container
(allows the circulation of air thus preventing bacterial growth)

 **Matches** – Metal container

 **Hair/ Fibre** – Paper envelope

 **Document** – Paper envelope slightly larger in size

- d. Each piece of packaged evidence should display a label that reflects the following pieces of information:
 - Case number
 - Exhibit number
 - Date of collection
 - Location collected from
 - Name of person who collected evidence
 - Description of evidence (*If the package is opaque*)

Section A — Crime Scene Processing Notes

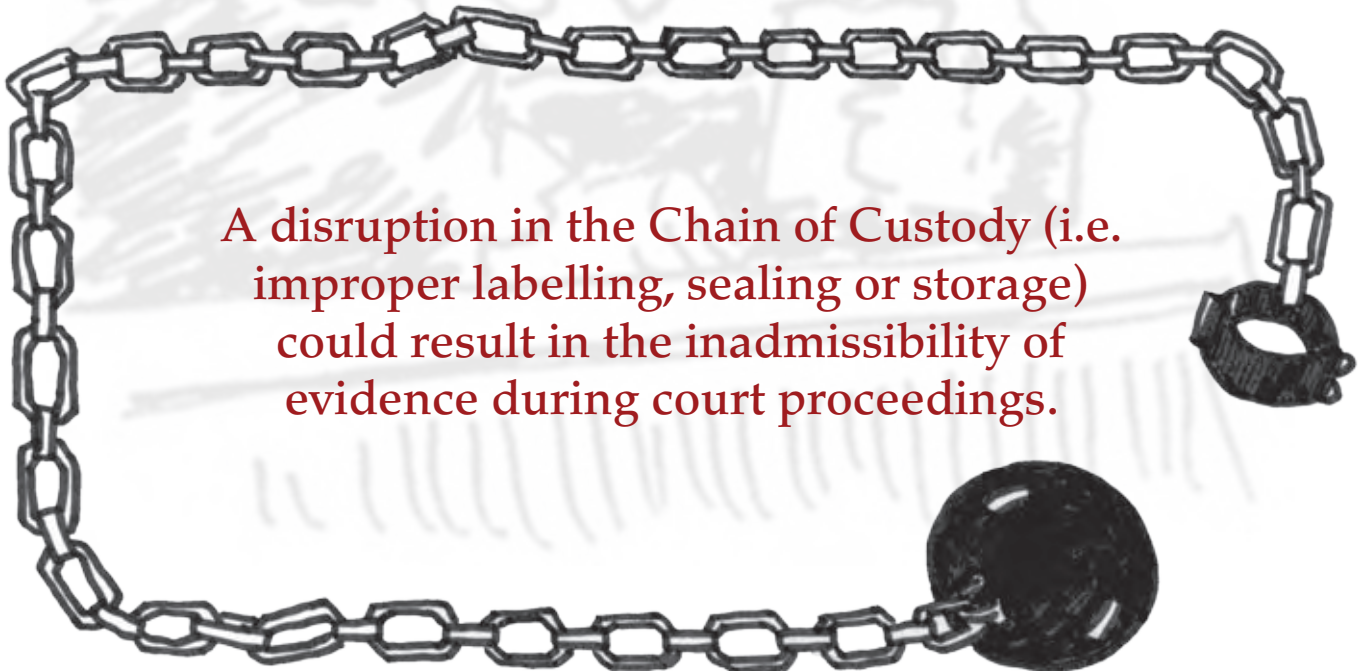
9. Chain of Custody

Proper completion of evidence labels plays an important part in the “Chain of Custody” of a piece of evidence.

Chain of Custody is a process that incorporates documentation of the “Who,” “When” and “Where” of a piece of evidence from its initial collection to its final disposition (i.e. destruction/storage).

Chain of Custody is a fundamental step that is crucial in maintaining the integrity of evidence and an investigation.

A disruption in the Chain of Custody (i.e. improper labelling, sealing or storage) could result in the inadmissibility of evidence during court proceedings.



Section 1 — Investigation: Crime Scene Processing


Name _____ Date _____ Class _____

Objective:









To determine the proper sequence of steps for evaluating and processing a crime scene.



Background:

- Crime scene processing involves taking steps to ensure the methodical and lawful collection of information and evidence at a crime scene. 
- Proper processing aids in the reconstruction of a crime and assists in the admissibility of evidence for court proceedings.

The following represent steps (not in order) that are taken by investigators when processing a crime scene:

-  Collecting evidence
-  Sketching the scene
-  Searching for evidence
-  Providing medical attention to injured persons
-  Photographing the scene
-  Recording notes
-  Securing the scene
-  Interviewing witnesses



Investigation Prep:

- For master copies of: "Search Pattern card", "Witness Information sheet" see later in this section.
- "Evidence Bags" can be purchased through science catalogues.
- Reclosable sandwich bags can be used in place of "Evidence Bags".
- Use one large "Evidence Bag" or a reclosable sandwich bag to hold the items listed under "Materials."
- Used film canisters can be obtained from film developing centres.
- "Crime Scene" tape can be purchased through science catalogues.
- "Caution" tape can be used in place of "Crime Scene" tape and can be purchased at a hardware store.
- "Bandaging Material" can consist of a plaster or a piece of gauze.
- Measuring tapes can be purchased through science catalogues or fabric supply stores.
- Small memo books should be used.

Materials:

One large plastic bag containing the following items:

- Film canister
- Graph paper with measuring tape
- Memo book
- "Witness Question" sheet
- Search pattern card
- Evidence bag
- Bandaging material
- "Crime Scene" tape

This investigation should precede notes on Crime Scene Processing.



Section 1 — Investigation: Crime Scene Processing

Procedure:

1. Read the following “Crime Scene” scenario:

On Wednesday evening, the next-door neighbour of Mr. Tom Livingston called the police to report the sound of gunshots. When the police arrived at Mr. Livingston’s apartment they found the following in the bedroom of his residence: a piece of torn bloody fabric, two 9mm casings, muddy shoe prints and Mr. Livingston with a gunshot wound to his right thigh.

2. Empty the contents of the plastic bag onto your work area.
3. Each item symbolises a step in crime scene processing. Using the crime scene scenario and the list of steps outlined under the “Background” information, determine which step each item symbolises. Write your answers in Data Table I.

| Data Table I | |
|---------------------------------|---|
| Item | Step |
| Film canister | e.g. Photograph the scene |
| Graph paper with measuring tape | Sketching the scene |
| Crime Scene tape | Securing the scene |
| Memo book | Recording notes |
| “Witness Question” sheet | Interviewing witnesses |
| “Search Pattern” card | Searching for evidence |
| Bandaging material | Providing medical attention to injured persons |
| Evidence bag | Collecting Evidence |

4. Using the “Background” information, the “Crime Scene” scenario, and your data from Data Table I, discuss with your partner what you think the logical sequence of steps is for processing a crime scene.
5. On your work area, place the items from the plastic bag in the order that you feel represents the proper sequence of steps for processing a crime scene.
6. When you are finished, ask your teacher to check your work.

Section 1 — Investigation: Crime Scene Processing

7. Record these steps in Data Table II.

| Data Table II |
|--|
| Steps for Processing a Crime Scene |
| 1. <i>Provide medical attention to injured persons *</i> |
| 2. <i>Secure the scene *</i> |
| 3. <i>Interview witnesses *</i> |
| 4. <i>Photograph the scene</i> |
| 5. <i>Record notes</i> |
| 6. <i>Sketch the scene</i> |
| 7. <i>Search the scene for evidence</i> |
| 9. <i>Collect evidence</i> |

* Note:
The order of Steps 1-3 can vary. Steps 1, 2, and 3 are performed simultaneously as there is typically more than one “first on the scene” Investigator that responds to the crime scene.

Section 1 — Investigation: Crime Scene Processing

Follow-Up Questions:

1. Often, people think that as long as pictures of a crime scene are taken, they do not have to take notes or make a sketch of the scene.
 - a. Do you agree or disagree with the above statement?
 - b. Explain your answer.

2. List three reasons why you think it is important to cordon off a crime scene with “Crime Scene” tape.

3. List at least three pieces of information that you would include on the label of a bag containing a piece of evidence that you collected from a crime scene.

4. Explain what role you think witnesses play at the scene of a crime.

5. One of the items contained in the plastic bag is a “Search Pattern” card outlining the following patterns, “Spiral,” “Quadrant,” “Line,” and “Grid,” that are implemented by Investigators when searching crime scenes for evidence.
 - a. Which two search patterns do you think would be helpful when searching a large area such as an open field?
 - b. Explain your answer.
 - c. Which two search patterns do you think would be helpful when searching a small area such as Mr. Livingston’s bedroom?
 - d. Explain your answer.

Exercise Answers:

- 1a. Disagree
- 1b.
 - Film/photographs can be ruined during processing.
 - Notes and sketches can include information/items that may not be captured by photographs.

2. Answers may include, but are not limited to:
 - To keep unwanted people out.
 - To prevent tampering of evidence.
 - To set specific boundaries for evidence searching/collecting.
 - To prevent theft of evidence.
 - To prevent the addition of evidence.

3.
 - Case number.
 - Date.
 - Location where evidence was collected.
 - Name of person collecting evidence.
 - Brief description of evidence.

4. Answers may include, but are not limited to:
 - Witnesses can provide answers to questions that can aid Investigators in their reconstruction of the crime.
 - Witnesses can help corroborate information regarding the crime.
 - Witnesses can provide information about the scene or victim(s) that evidence alone cannot. (e.g. The comings and goings of the victim(s)).

- 5a. “Line” and “Grid”
- 5b. A large area would require multiple people
- 5c. “Quadrant” and “Spiral”
- 5d. A small area would require fewer people so as to avoid confusion/ repetition

Section 6 — Exam: History and Crime Scene Investigation

Instructions

Base your answers to questions 1 through 7 on the scenario below.
Record your answers on the answer sheet provided.

“The Modelling Agency Murders”

At approximately 5:00 A.M. on Thursday morning, fashion model, Joan Marie Caldwell arrived at “Tereza D’s” modelling agency. She went to retrieve some items needed for a photo shoot later that day. Joan figured that by arriving at such an early hour she would be sure to avoid Joyce McKeon, the hyper fashion designer whom she frequently argued with.



Upon her arrival, Joan found the door to the agency’s office jammed. After a third shove, the door opened revealing the bloodied body of Tereza D. Joan quickly exited the office and called the police on her mobile phone.

In addition to Tereza D.’s body, Investigators found the bloodied bodies of Joyce McKeon and male model, Kenneth Dogwood. Tereza D. and Joyce McKeon, found face up, appeared to have been stabbed to death, by a sharp, narrow object while Kenneth Dogwood, found face down, had been shot in the back of the head.

While processing the scene, Investigators noted the following:

1. A file cabinet drawer had been pried open (black metal shavings, probably from the object used to open the drawer, clung to the pry marks.)
2. Pink feathers, consistent with the feather boa draped around Joyce McKeon’s neck, were scattered about the room and the floor outside the office door.
3. A partial, bloody shoe print on the floor leading away from the scene.
4. A ripped plastic bag containing an off-white powder lying between the bodies of Tereza D. and Kenneth Dogwood.
5. Flecks of a bright pink substance, resembling Joyce McKeon’s nail polish, on the face of Kenneth Dogwood.
6. Small amounts of off-white powder on the floor inside and outside the door of the office
7. Clumps of a dark brown substance, below the left hand of Joyce McKeon (The substance resembled soil from the small garden outside the agency.)
8. A 9mm cartridge shell next to the right thigh of Kenneth Dogwood.
9. A blood soaked white cotton glove in front of the file cabinet.

Section 6 — Exam: History and Crime Scene Investigation

1. "Locard's Exchange Principle," also known as "transfer-evidence occurrence," states, "any time there is contact between two objects, there will be an exchange of materials between the two objects."

Give four (4) examples of "transfer-evidence occurrence" that took place at the Modelling Agency.

***Be sure to include the following details for each of the three examples:**

- a. **Type** of evidence.
 - b. **Where** it was transferred from.
 - c. **What** it was transferred to.
2. a. You are the lead investigator at the scene of the murders.
Which of the following search patterns, Line, Quadrant, Grid or Spiral, would you instruct your fellow-investigators to conduct?
- b. Explain why you would use the type of search pattern you chose.
3. Complete the "Evidence Packaging Procedures" chart on the answer sheet for four (4) pieces of evidence found at the scene.

Below is a copy of the evidence label from the evidence envelope containing the bag of off-white powder found in between the bodies of Tereza D. and Kenneth Dogwood.

| Evidence | |
|---------------------------|--------------------------------|
| Case #: | <u>NY-07-234</u> |
| Exhibit #: | <u>5</u> |
| Collected by: | <u>INV. ED VINCE</u> |
| Location: | <u>BET. BODIES #1 & #2</u> |
| Description: | <u>BAG / OFF-WHITE POWDER</u> |
| Date: | <u>07 JUN 05</u> |
| Witnessed by: | <u>INV. TOM OLLEY</u> |
| Sealed by: | <u>INV. ED VINCE</u> |
| Gross Weight: | <u>107.2g</u> |
| Date Opened: | _____ |
| Opened by: | _____ |
| Resealed: | _____ |
| Gross Wt. After Analysis: | _____ |

Section 6 — Exam: History and Crime Scene Investigation

The “Gross Weight” of a piece of evidence is described as the weight of the evidence plus the weight of the evidence container (e.g. evidence envelope) that it is packaged in.

4. a. Explain why you think it is important for an Investigator to record the Gross Weight for a piece of evidence.
- b. What inference can be made if the Gross Weight for Exhibit #5 is found to be **100.2** grams by the Chemist before she opens it for analysis?
- c. In terms of “Chain of Custody,” why is it important for the investigator packaging the evidence to write her/his name on the “Collected By” section of the evidence label?
- d. Explain why you think it is important for another investigator to witness the collection/ sealing of a piece of evidence.

5. The picture to the right, represents a photograph of the partial shoe print that was found at the scene.

Determine which of the “Suspect” prints , located on your answer sheet, is consistent with the “Crime Scene” print.



(A) Crime Scene Print

- a. Complete the following statement:
The “Crime Scene” print is consistent with “Suspect” print.
 - b. Circle three characteristics (in both the “Crime Scene” and “Suspect” print) that helped you in your individualization of the prints.
6. You are testifying in a court of law. The Prosecutor asks, “Could you please explain the difference between “Class” characteristics and “Individual” characteristics?”
Write your explanation on the answer sheet.

Section 6 — Exam: History and Crime Scene Investigation

7. On the answer sheet is a copy of the final sketch of the “Modelling Agency Murders” crime scene that you, the “sketcher” are working on.
 - a. Using the information in the scenario and the legend, complete the sketch for items 9-17.
 - b. Describe the differences between a rough sketch and a final sketch of a crime scene.
 - c. Explain why a final sketch rather than a rough sketch is used during court procedures.

8. Based on the evidence and the sketch of the crime scene that you have reviewed for the “Modelling Agency Murders,” what is your opinion of the events? (e.g. Why were the three people killed? Who is responsible for the deaths? What type of weapon(s) was/were used to kill the people?)

Extra Credit:

If an Epidemiologist is defined as... “a scientist who deals with the incidence, distribution and control of disease in a population,” how would you define a Forensic Epidemiologist?

Section 6 — Exam: History and Crime Scene Investigation: Answer Sheet

Name _____ Date _____ Class _____

1.

| Type | Where from | What to |
|------|------------|---------|
| | | |
| | | |
| | | |
| | | |

2a. _____

2b. _____

3.

| Evidence Packaging Procedures | | |
|-------------------------------|--------------|--------------------|
| Evidence | Package Type | Purpose of Package |
| | | |
| | | |
| | | |
| | | |

4a. _____

Section 6 — Exam: History and Crime Scene Investigation: Answer Sheet

Name _____ Date _____ Class _____

4b. _____

4c. _____

4d. _____

5.



Crime Scene Print



Suspect Print "A"



Suspect Print "B"



Suspect Print "C"

5a. The "Crime Scene" print is consistent with "Suspect" print _____.
(letter)

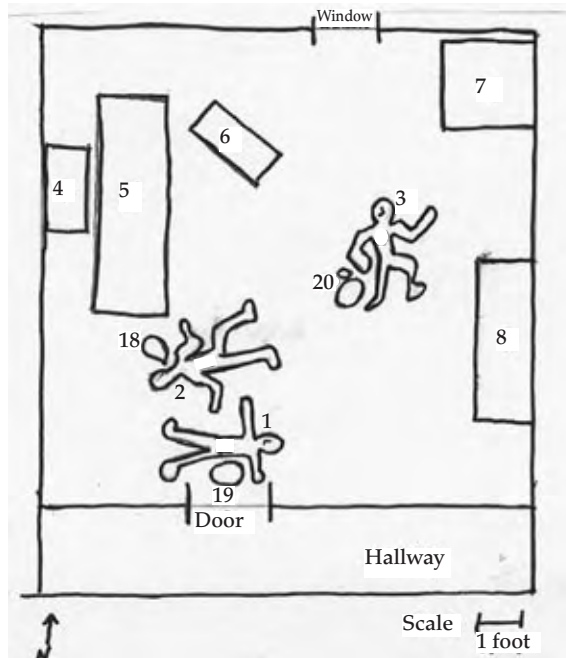
5b. (Circle the characteristics in the prints above)

Section 6 — Exam: History and Crime Scene Investigation: Answer Sheet

Name _____ Date _____ Class _____

6. _____

7a.



Case No. NY723
 Date. 23Jul05
 Time. 0600hr
 Location. Tereza D's Modelling Agency

- | | |
|---------------------------------------|-------------------------|
| Legend | |
| 1. Tereza D | 16. 9mm cartridge shell |
| 2. Kenneth Dogwood | 17. Glove |
| 3. Joyce McKeon | 18, 19, 20. Blood |
| 4. Chair | |
| 5. Desk | |
| 6. Chair | |
| 7. File cabinet | |
| 8. Loveseat | |
| 9. Black metal shavings | |
| 10. Pink feathers | |
| 11. Bloody shoe print | |
| 12. Plastic bag with off-white powder | |
| 13. Flecks of bright pink substance | |
| 14. Off-white powder | |
| 15. Dark brown substance | |

Section 6 — Exam: History and Crime Scene Investigation: Answer Sheet

Name _____ Date _____ Class _____

7b. _____

7c. _____

8. _____

Extra Credit

Section 7 — Exam: History and Crime Scene Investigation: Answers

Name _____ Date _____ Class _____

1.

| Type | Where from | What to |
|---------------------------------|------------------------------------|--|
| Black metal shavings | Object used to pry open drawer | File cabinet drawer |
| Pink feathers | Joyce McKeon's boa | Floor of office and floor outside office |
| Flecks of bright pink substance | Joyce McKeon's nails | Kenneth Dogwood's face |
| Off-white powder | Ripped plastic bag of white powder | Floor outside and inside office |
| Dried dark brown substance | Next to head of Joyce McKeon | Garden outside agency |

2a. **Spiral**2b. **Room/small area**

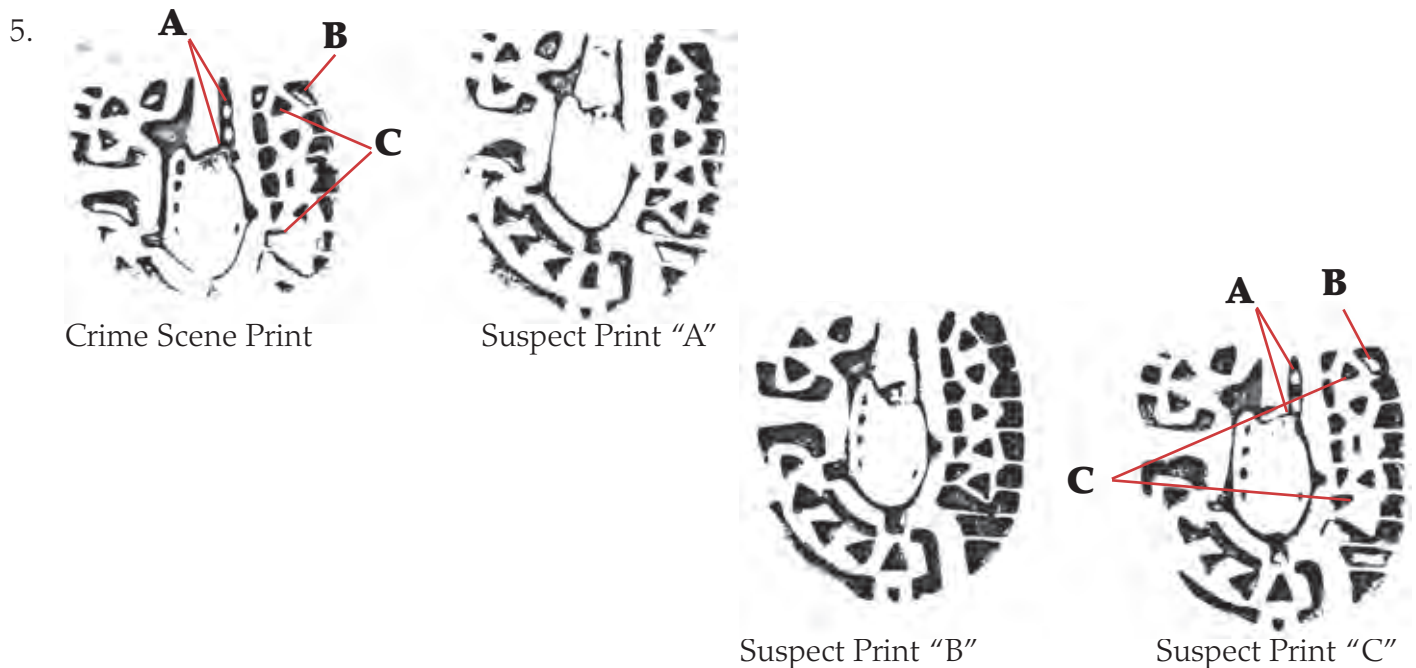
3.

| Evidence Packaging Procedures | | |
|-------------------------------|---|--|
| Evidence | Package Type | Purpose of Package |
| Black metal shavings | Any type of paper package envelope, box or glass vial | Avoid the effects of static electricity caused by a plastic package. |
| Feathers | Any type of paper package envelope, box or glass vial | Avoid the effects of static electricity caused by a plastic package. |
| Bright pink flecks | Any type of paper package envelope, box or glass vial | Avoid the effects of static electricity caused by a plastic package. |
| Off-white powder | Any type of paper package envelope, box or glass vial | Avoid the effects of static electricity caused by a plastic package. |
| Dried dark brown substance | Any type of paper package envelope, box or glass vial | Avoid the effects of static electricity caused by a plastic package. |
| Blood soaked glove | Paper bag or envelope | Allows air to circulate. Prevents bacterial growth. |
| 9mm shell casing | Wrapped in cotton and placed in cardboard box | Prevent scratching/denting |

Section 7 — Exam: History and Crime Scene Investigation: Answers

Name _____ Date _____ Class _____

- 4a. **Answers may include but are not limited to:**
- To ensure that the evidence has not been tampered with (nothing has been added/ nothing has been removed).
 - The gross weight of the evidence obtained by the Chemist before opening it can be compared to the gross weight of the evidence obtained by the Investigator to ensure that they are the same.
- 4b. **Answers may include but are not limited to:**
- That some of the evidence has been removed/stolen.
 - That an error was made when the Investigator weighed the evidence.
 - That an error was made when the Chemist weighed the evidence.
- 4c. **Answers may include but are not limited to:**
- Because it is important to have a record/knowledge of where the evidence is, and who had the evidence at all times. In order to maintain the chain of custody.
 - A break in the chain of custody (the Investigator's name missing from the "collected by" section of the evidence label) could result in the inadmissibility of evidence into court.
 - If the case goes to court, the proper Investigator will be called to testify
- 4d. **Answers may include but are not limited to:**
- To ensure that nothing is added/removed
 - To be able to testify (if needed) that the evidence was handled properly and not tampered with



Section 7 — Exam: History and Crime Scene Investigation: Answers

Name _____ Date _____ Class _____

5a. **Suspect print "C"**
 5b. **(See A, B and C)**

6. **Explanations should include the word, "general", when discussing Class characteristics and "specific/ unique" when discussing Individual characteristics."**

7a.

The diagram shows a rectangular room with a door at the bottom center and a window at the top center. A hallway is located to the right of the door. Furniture includes a chair (4), desk (5), chair (6), file cabinet (7), and loveseat (8). A person (3) is shown in a crouching position near the loveseat. A person (2) is shown lying on the floor near the door. A person (1) is shown lying on the floor near the door. Evidence markers 1-20 are placed around the scene. A scale bar indicates 1 foot. A north arrow is also present.

| | | |
|---|--|---|
| <p>Case No. NY723 Date. 23Jul05 Time. 0600hr Location. Tereza D's Modelling Agency</p> | <p>Legend</p> <ol style="list-style-type: none"> 1. Tereza D 2. Kenneth Dogwood 3. Joyce McKeon 4. Chair 5. Desk 6. Chair 7. File cabinet 8. Loveseat 9. Black metal shavings 10. Pink feathers 11. Bloody shoe print 12. Plastic bag with off-white powder 13. Flecks of bright pink substance 14. Off-white powder 15. Dark brown substance | <ol style="list-style-type: none"> 16. 9mm cartridge shell 17. Glove 18, 19, 20. Blood |
|---|--|---|

Section 7 — Exam: History and Crime Scene Investigation: Answers

Name _____ Date _____ Class _____

7b. **A Rough sketch is more detailed, not as neat, includes written dimensions and labels and is used for recall.**

A Final sketch is less detailed, neat, uses numbers and a legend in place of labels, does not include dimensions and is used in court.

7c. **A Final sketch is used in court because it is neat and will be more easily read / understood than a rough sketch.**

8. **Answers will vary.**

Extra Credit

A Forensic Epidemiologist is a scientist who deals with the incidence, distribution and control of a disease in a population as it relates to matters of law.