

Grades 9-12 NTI Day #5 Forensics

Assignment: Please read the excerpt below as an independent reading assignment. Then read and answer the questions below the excerpt.

The Crime Scene

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VINCENZO PINTO/AFP/Getty Images

Key Terms

buccal swab
chain of custody
finished sketch
physical evidence
rough sketch
standard/reference sample
substrate control

Amanda Knox: A Flawed Case of Murder

In September 2007, Amanda Knox moved to Perugia, Italy, as a foreign exchange student attending language classes at the University for Foreigners. Knox shared an upstairs flat in a cottage with Meredith Kercher and two other women. Within weeks of her arrival, Knox became romantically linked to an Italian student, Raffaele Sollecito, and began spending nights at his home.

On November 1, Kercher was brutally murdered. Early that afternoon, Kercher's naked body was found inside her bedroom covered by a bedspread soaked in blood and with stab wounds to her throat. As the investigation proceeded, police matched fingerprints found in Kercher's bedroom to Rudy Guede, whom Knox and Kercher had met weeks earlier when he was playing guitar on the downstairs floor of their cottage flat. Guede was subsequently arrested and charged with the Kercher murder. His DNA was later found at the crime scene, on and inside Kercher's body. The prosecution also charged Knox and Sollecito with murder and sexual assault.

According to the prosecution's theory, Knox was part of a satanic ritual sex game that went out of control. The Knox case became the subject of intense media scrutiny, focusing in part on Knox's alleged romantic escapades. The prosecution alleged that the murder weapon was a kitchen knife found in Sollecito's kitchen that had Kercher's DNA on the blade and Knox's DNA on the handle. The DNA on the handle could have arisen from Knox's handling of the knife while cooking for Sollecito. Experts questioned the veracity of the DNA protocols conducted on the knife blade. Expert analysis concluded that the knife wounds were inconsistent with the knife recovered from Sollecito's residence. Guede was convicted of Kercher's murder. Knox was convicted of slander, sexual violence, and murder and sentenced to twenty six years in prison. Four years later her conviction was set aside by the Italian supreme court and a new trial was ordered. In 2015, Italy's highest court—the Supreme Court of Cassation—definitively exonerated Knox and Sollecito.

Learning Objectives

After studying this chapter, you should be able to:

- 2.1 Describe the various measures taken while securing, recording, and searching the crime scene
- 2.2 Describe proper techniques for packaging common types of physical evidence
- 2.3 Explain the concept of chain of custody
- 2.4 Relate what steps are typically required to maintain appropriate health and safety standards at the crime scene
- 2.5 Understand the implications of relevant U.S. Supreme Court decisions in conducting a crime scene investigation

National Science Content Standards



Scientific Inquiry



Physical Science



History and Nature of Science

Physical Evidence and the Crime Scene

physical evidence
Any object that can establish that a crime has or has not been committed or can link a crime and its victim or its perpetrator

As automobiles run on gasoline, crime laboratories “run” on **physical evidence**. Physical evidence encompasses any and all objects that can establish that a crime has or has not been committed or can link a crime and its victim or its perpetrator. But if physical evidence is to be used effectively to aid the investigator, its presence first must be recognized at the crime scene. If all the natural and commercial objects within a reasonable distance of a crime were gathered so that the scientist could uncover significant clues from them, the deluge of material would quickly immobilize the laboratory facility. Physical evidence achieves its optimum value in criminal investigations only when its collection is performed with a selectivity governed by the collector’s thorough knowledge of the crime laboratory’s techniques, capabilities, and limitations.

Forthcoming chapters discuss methods and techniques available to forensic scientists to evaluate physical evidence. Although current technology has given the crime laboratory capabilities far exceeding those of past decades, these advances are no excuse for complacency on the part of criminal investigators. Crime laboratories do not solve crimes; only a thorough and competent investigation conducted by professional police officers will enhance the chances for a successful criminal investigation. Forensic science is, and will continue to be, an important element of the total investigative process, but it is only one aspect of an endeavor that must be a team effort. The investigator who believes the crime laboratory to be a solution for carelessness or ineptness is in for a rude awakening.

Forensic science begins at the crime scene. If the investigator cannot recognize physical evidence or cannot properly preserve it for laboratory examination, no amount of sophisticated laboratory instrumentation or technical expertise can salvage the situation. The know-how for conducting a proper crime-scene search for physical evidence is within the grasp of any police department, regardless of its size. With proper training, police agencies can ensure competent performance at crime scenes. In many jurisdictions, police agencies have delegated this task to a specialized team of technicians. However, the techniques of crime-scene investigation are easy to master and certainly lie within the bounds of comprehension of the average police officer.

Not all crime scenes require retrieval of physical evidence, and limited resources and personnel have forced many police agencies to restrict their efforts in this area to crimes of a more serious nature. Once the commitment is made to process a crime site for physical evidence, however, certain fundamental practices must be followed.

Securing the Crime Scene

The first officer to arrive at the scene of a crime is responsible for taking steps to preserve and protect the area to the greatest extent possible. The officer should not let their guard down; the scene should always be treated as though the crime were still occurring until it is proved otherwise. Arriving officers should immediately ascertain that the perpetrator is no longer in the immediate area of the crime scene and is not a threat to anyone at or near the crime scene. Special note should be taken of any vehicles or people leaving the scene. Of course, first priority should be given to obtaining medical assistance for individuals in need of it. If medical assistance is needed, the officer should direct medical workers to approach the body by an indirect route to minimize the possibility of disturbing evidence. This pathway should later be used by

investigative personnel for the same reason. The first responding officer must quickly evaluate the victim's condition before the victim is taken to a medical facility. The officer must also record any statements made by the victim and instruct the emergency medical personnel to record any statements the victim makes on the way to the hospital. This information should later be included in notes.

The officer should call for any backup or investigative personnel required and, as soon as possible, detain all potential suspects or witnesses still at the scene. The officer must identify all individuals at the scene, including bystanders and medical personnel. At the same time, the officer should exclude all unauthorized personnel from the scene. This includes family and friends of the victim, who should be shown as much compassion as possible.

The first responder(s) are responsible for establishing the boundaries of the scene to be protected. The boundaries should encompass the center of the scene where the crime occurred, any paths of entry or exit, and any areas where evidence may have been discarded or moved. For indoor scenes this may include anything from a single room to an entire house and yard. The center of the crime scene is usually apparent, and a sufficient area around this spot should be closed off. The boundaries of an outdoor crime scene are more difficult to determine and can span miles, especially if a vehicle is involved.

The officer should initially denote the boundaries of the scene using crime-scene tape, ropes, or traffic cones (see Figure 2-1). As additional officers arrive,

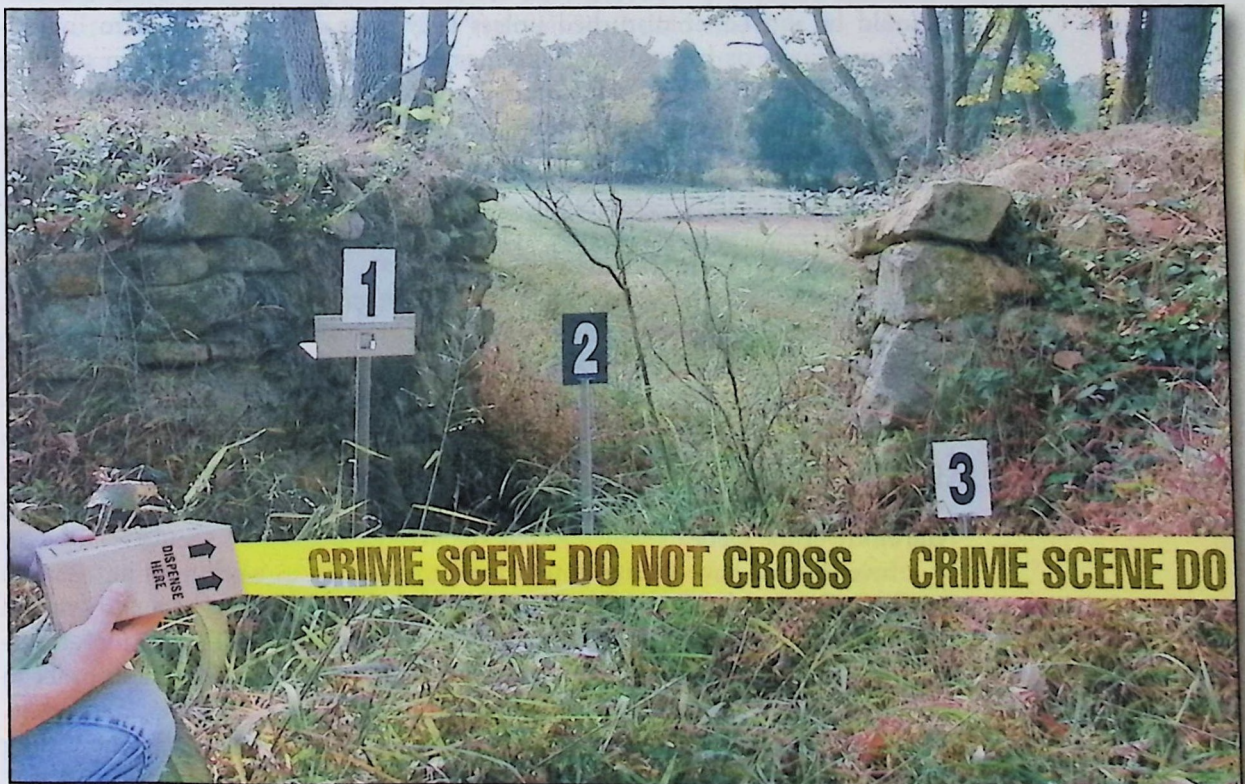


FIGURE 2-1 The first investigators to arrive must secure the crime scene and establish the crime-scene perimeter. Courtesy Sirchie Finger Print Laboratories, Inc., Youngsville, N.C., www.sirchie.com

investigators should immediately take measures to isolate the area around the taped-off section. Police barricades, along with the strategic positioning of guards, will prevent unauthorized access to the area. Only investigative personnel assigned to the scene should be admitted. The responding officers must keep an accurate log of who enters and exits the scene and the time at which they do so.

Sometimes the exclusion of unauthorized personnel proves more difficult than expected. Violent crimes are especially susceptible to attention from higher level police officials and members of the press, as well as by emotionally charged neighbors and curiosity seekers. Every individual who enters the scene has the potential to destroy physical evidence, even if by unintentional carelessness. To exercise proper control over the crime scene, the officer protecting it must have the authority to exclude everyone, including fellow police officers not directly involved in processing the site or in conducting the investigation. Seasoned criminal investigators are always prepared to relate horror stories about crime scenes where physical evidence was rendered totally valueless by hordes of people who trampled through the site. Securing and isolating the crime scene are critical steps in an investigation, the accomplishment of which is the mark of a trained and professional crime-scene investigative team.

It is worth noting that personnel should never do anything while at the crime scene—including smoking, eating, drinking, or littering—that might alter the scene. No aspects of the scene, including a body at a death scene, should be moved or disturbed unless they pose a serious threat to investigating officers or bystanders. This means that no one should open or close faucets or flush toilets at the scene. Also, officers should avoid altering temperature conditions at the scene by adjusting windows, doors, or the heat or air-conditioning.

Worksheet
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1. What is the primary responsibility of the first officer arriving at a crime scene?
 - a) Collecting and packaging physical evidence
 - b) Taking photographs of the crime scene
 - c) Preserving and protecting the crime scene
 - d) Conducting a detailed investigation

2. What should be done if medical assistance is needed at a crime scene?
 - a) The officer should delay medical aid until the scene is fully documented.
 - b) Medical workers should be directed to approach the body by an indirect route.
 - c) The body should be moved to a more accessible location for treatment.
 - d) The officer should let medical workers enter the scene freely.

3. Why is it important to exclude unauthorized personnel from a crime scene?
 - a) To prevent emotional distress to family members.
 - b) To ensure the scene remains undisturbed and evidence is preserved.
 - c) To minimize media coverage of the crime scene.
 - d) To avoid having too many people available for questioning.

4. What is meant by the term "physical evidence"?
 - a) Testimonies from witnesses and suspects.
 - b) Any object that can establish that a crime has occurred or link a victim and perpetrator.
 - c) Information recorded in police notes and reports.
 - d) The preliminary sketch of the crime scene.

5. What should an officer avoid doing at a crime scene to prevent contamination?
 - a) Taking notes and photographs.
 - b) Detaining potential witnesses.
 - c) Smoking, eating, drinking, or littering.
 - d) Calling for backup officers.

6. What piece of evidence did the prosecution claim was the murder weapon in the Amanda Knox case?
 - a) A kitchen knife found in Sollecito's kitchen
 - b) A guitar belonging to Rudy Guede
 - c) A bloody glove found at the scene
 - d) A hammer found in Knox's apartment

7. Why was Amanda Knox's initial conviction overturned by Italy's highest court?

a) New evidence proved her guilt beyond a doubt.

b) The court determined she had fled the scene of the crime.

c) There were doubts about the reliability of the DNA evidence and inconsistencies with the alleged murder weapon.

d) Her confession was ruled as being coerced by law enforcement.