

Crime Scene Investigation

Myth: A single investigator trained in forensics can collect and analyze all evidence from a crime scene.

Fact: Crime scene investigation and analysis requires a team of knowledgeable experts to collect and process evidence. Because of their training and expertise, investigators and analysts tend to specialize in a particular forensic discipline such as fingerprints, firearms or DNA analysis. The process is tedious and time-consuming because investigators must collect all possible evidence without knowing in advance what is relevant to an investigation. In a separate step, only highly trained laboratory-based analysts from various disciplines can conclusively examine crime scene evidence and report their findings.

NFSTC trains law enforcement personnel to investigate and process crime scenes, including collecting and preserving high-value items of evidence.

Alternate Light Source (ALS)

Myth: With a blue light, investigators can detect the presence of blood at a crime scene.

Fact: While television programs often depict the use of a special light to detect blood at a crime scene, the use of Luminol alone in a dark room without special lighting allows visual detection of the presence of blood. Other bodily fluids, such as saliva and semen, become fluorescent under an ALS.

NFSTC conducts biological screening workshops that include training in the use of an ALS to investigate crime scenes. In addition, NFSTC conducts evaluations of forensic technology solutions, such as comparisons of monochromatic and banded light sources for detection of evidence.

DNA Analysis

Myth: Advanced DNA analysis automatically identifies an individual within minutes.

Fact: DNA analysis takes several hours for even simple cases, although a laboratory typically takes 30 days or more to complete DNA testing. In addition, the FBI's Combined DNA Index System (CODIS) stores no personal data with its 7.5 million records. To confirm identity, analysts search other databases containing information about convicted offenders, unsolved crimes and missing persons at the local, state and national levels. For more information, visit www.dna.gov/dna-databases/codis.

NFSTC delivers hands-on instruction to hundreds of DNA analysts at its training labs or at DNA laboratories throughout the country, in addition to offering free online training at www.dna.gov.

Fingerprint Fact Card

Myth: All fingerprint records in the United States are stored in a single database, the FBI's Integrated Automated Fingerprint Identification System (IAFIS).

Fact: IAFIS contains fingerprint records for individuals arrested for a crime and for those who apply for civil employment or licensing screens. However, other fingerprint databases exist at the local, state and federal levels. To match a crime scene print, investigators may search multiple fingerprint databases, including those from local and state jurisdictions that have not entered records in IAFIS.

NFSTC delivers training to law enforcement personnel, teaching investigators to properly identify, collect and analyze pattern evidence, including fingerprints, latent prints, tire tracks and footwear. To deliver this training, NFSTC partners with Ron Smith and Associates, specialists in forensic consulting, management, training and recruitment.

Drugs and Explosives Testing

Myth: A trained crime scene investigator can usually identify an unknown powder by sight, smell or taste.

Fact: Contrary to television portrayals, crime scene specialists never taste an unknown substance to determine its composition because of the danger posed by the potential presence of poisons. Instead, investigators are armed with hand-held, portable kits to conduct preliminary, presumptive testing of unknown powders in the field. Only confirmatory analysis with sophisticated instrumentation can conclusively determine the components of a sample powder submitted as part of an investigation.

NFSTC conducts crime scene investigation training, teaching techniques for performing collection, presumptive identification and preservation of evidence in the field. NFSTC also conducts technical evaluations to help law enforcement and military personnel select the best field equipment for collecting and preserving evidence.

Digital Evidence

Myth: The Internet Protocol (IP) address can identify who sent an e-mail.

Fact: An IP address is analogous to a telephone number. While both numbers are uniquely assigned, investigators can determine only the person who pays for the IP address or telephone number by using public records and the legal process. Whether tracking an IP address to a public access router or to a private home, investigators still need to use old-fashioned police work to place a suspect "at the keyboard."

NFSTC supported the development of two guidebooks published by the National Institute of Justice, *Digital Evidence in the Courtroom* and *Electronic Crime Scene Investigation: A Guide for First Responders – Edition 2*. NFSTC has also developed a partnership to train U.S. military personnel on the use of digital and cell phone forensics.

Ballistics

Myth: You can always match a bullet with the gun that fired it.

Fact: The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) maintains the National Integrated Ballistics Information Network (NIBIN), which allows law enforcement agencies to scan and compare digital images of the firearm markings on bullets and cartridge casings. However, if a gun has been modified after firing or if the bullet is badly damaged, the bullet will no longer match the barrel and a link cannot be confirmed. Frequently, cartridge casings provide more information than the actual bullet fired.

NFSTC delivers a complete Firearms Examiner Training program via the Web. The training meets the educational standards of the Association of Firearm and Toolmark Examiners (AFTE). This training is available at www.projects.nfstc.org/firearms.