

Unit 1- Introduction to Forensics



Unit 1 *Forensic Skills*

By the end of this unit you will be able to:

- 1.1 Define observation and describe what changes occur in the brain while observing.
- 1.2 Describe examples of factors influencing eyewitness accounts of events.
- 1.3 Compare the reliability of eyewitness testimony with what actually happened.

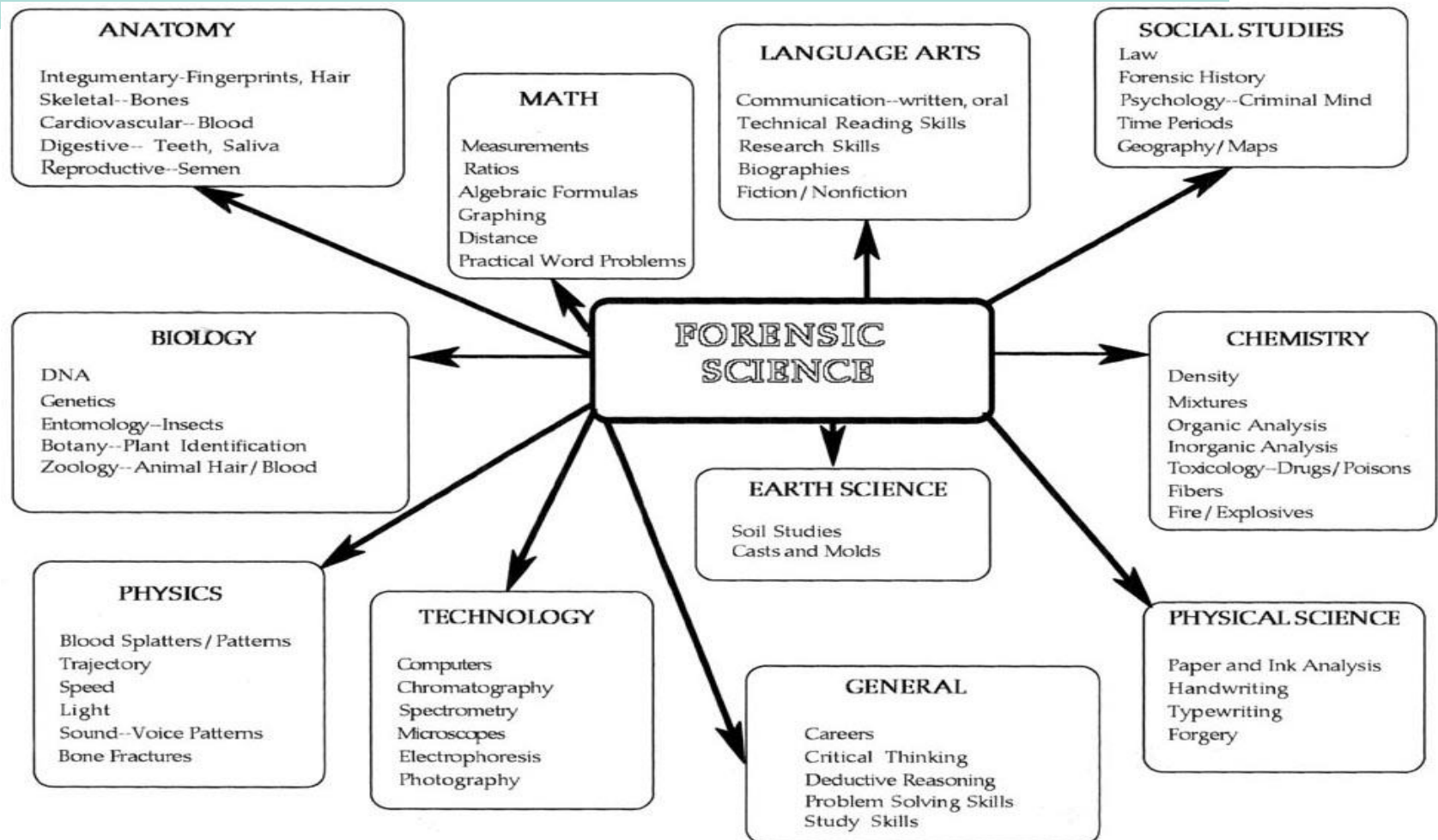
Unit 1

By the end of this unit you will be able to:

- Explain how the different types of evidence are observed and collected.
- Practice recording and preserving a crime scene.

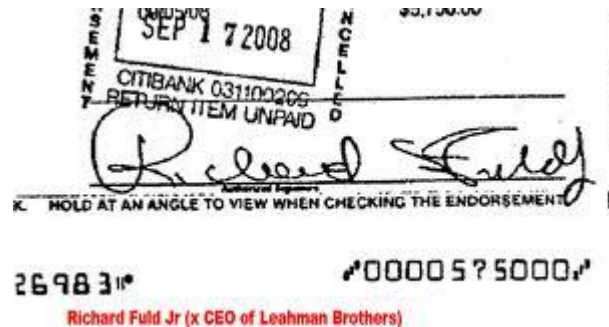
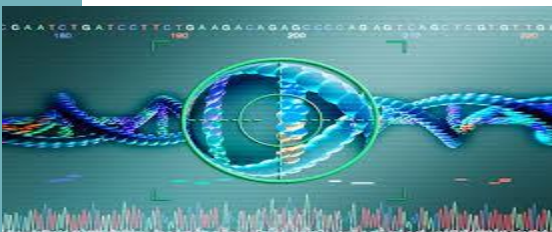
Forensic Science Defined:

- Forensic Science (or Criminalistics) is the use of science & technology to enforce civil & criminal laws.



Services of Forensic Labs

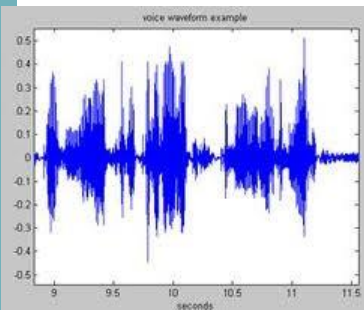
- Physical Science Unit – Chemistry, physics
- Biology Unit – DNA, body fluids analysis, hair & fibers, botanical
- Firearms Unit – guns, bullets, gunpowder
- Documents Unit – handwriting, printed
- Photography Unit – digital imaging documentation



Services of Forensic Labs



- Toxicology Unit – drugs, poisons
- Fingerprint Unit – latent fingerprints
- Polygraph Unit - lie detectors
- Voiceprint / sound Unit – identification
- CSI – Crime Scene Investigation Unit – handles on site examination for evidence.

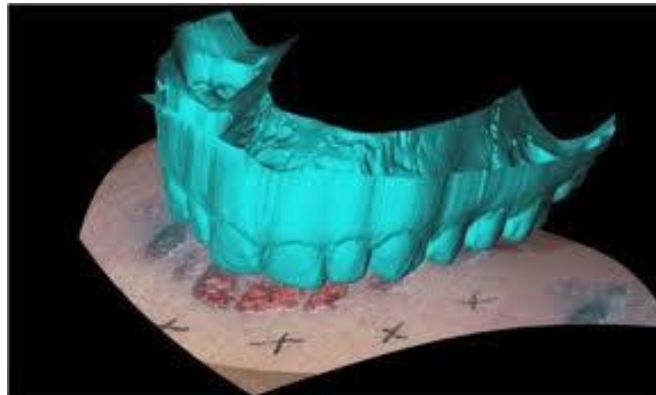


Services of Forensic Labs



Forensic Psychiatry Unit – mental evaluation / monitoring

- Forensic Odontology - dental ID
- Forensic Engineering – failure analysis
- Forensic Computer Unit- digital analysis



Civil vs. Criminal Law

CIVIL LAW

- filed by a private party.
 - a corporation
 - an individual
- Penalty: a guilty defendant pays the plaintiff for losses caused by their actions.
 - no incarceration

CRIMINAL LAW

- filed by the government
- Penalty: a guilty defendant is punished by
 - incarceration (in jail/prison)
 - fine paid to the gov' t
 - execution (death penalty)
- Crimes are divided into 2 classes:
 - misdemeanors - < 1 year incarceration
 - felonies - 1+ year sentence

Introduction

- A forensic investigator must be able to clearly:
 - Observe
 - Interpret
 - Report



Figure 1-1 *A crime scene is often laid out in a grid to ensure that all evidence is found.*



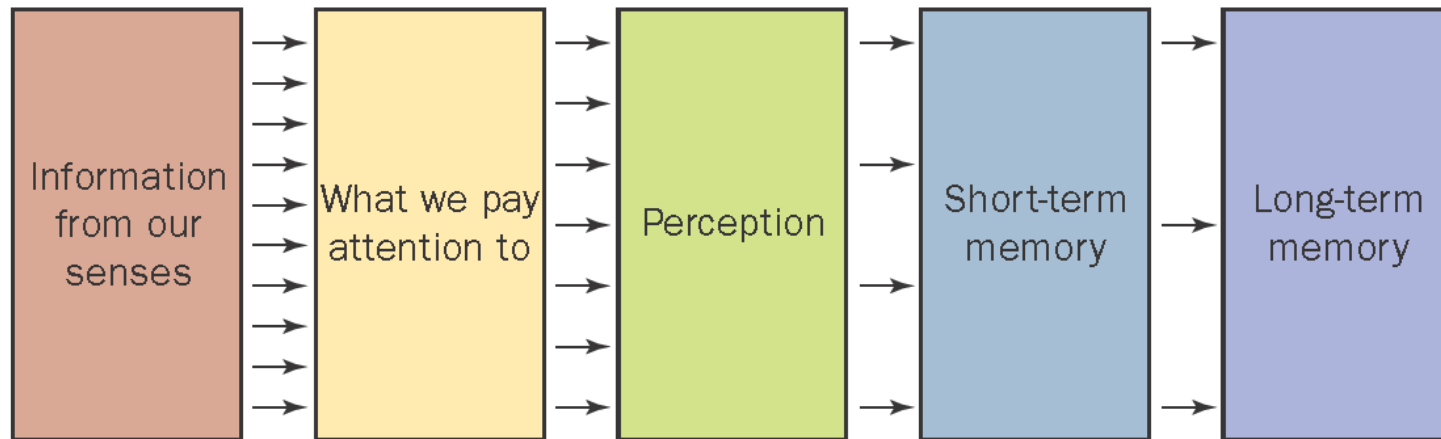
AP Images/Charles Bennett

What is an Observation?

- -What a person perceives using his or her five senses
- We are constantly collecting information through observations : sight, hearing, smell, taste, and touch.
 - We cannot pay attention to everything all at once.
 - 📖 We pay attention to things likely to be important like changes in the environment: new movement, sound, etc.
- Filtering is an unconscious process that helps the brain deal with all the stimuli and information that bombards it.

What Is Observation? (continued)

Figure 1-2 *How information is processed in the brain.*




What Is Observation? (continued)

- Our brains selectively take in information.
- We unconsciously apply filters.
- Paying attention to the details of your surroundings requires a conscious effort.

What Is Observation? (continued)

- Perception is
 - Limited
 - Faulty
 - Not always accurate
 - Not always reflective of reality



- 
- o If you can read this, you must be really smart!

Look at the chart below and do your best to say the color, not the word:

Blue **Red** **Orange**

Black **Yellow** **Green**

Purple **Yellow** **Pink**

Yellow **Blue** **Black**

Red **Purple** **Yellow**

Black **Orange** **Red**

This is an example of left brain/right brain conflict!
Your right brain tries to say the color, but your left brain
insists on reading the word.

Observations by Witnesses

- Observations are affected by:
 - Emotional states
 - Whether you are alone or with a group of people
 - The number of people and/or animals in the area
 - The type of activity that is going on around you
 - How much activity is occurring around you

Figure 1-3 *This eyewitness is searching a mug book for previous offenders who might have committed the crime she witnessed.*



Mikael Karlsson/Alamy

Eyewitness Accounts

- Prejudices
- Personal beliefs
- Motives
- Any lapse in time since the event

The Innocence Project

- Created by Barry C. Scheck and Peter J. Neufeld in 1992
- Benjamin N. Cardozo School of Law

The Innocence Project (continued)

- Used DNA to examine post-conviction cases to conclusively decide guilt or innocence
- Faulty eyewitness identification accounted for up to 87% of wrongful convictions

How to be a Good Observer

1. Observe systematically

- Start at one part of a crime scene and run your eyes slowly over every space.
- Look carefully at everything you see.
- When examining a piece of evidence on a microscope slide, look systematically in every part of the evidence.

How to be a Good Observer

(continued)

2. Turn off filters.

- Consciously observe everything.
- Act like a data-gathering robot.

How to be a Good Observer

(continued)

3. Avoid jumping to conclusions.

- Concentrate on gathering all of the available information.
- Leave the interpretation until all information is gathered.

How to be a Good Observer

(continued)

4. Compensate for faulty memories.

- Write down and photograph as much information as possible.
- Documentation is also important when acting as an expert witness.
- Even the verbal testimony of a forensic scientist requires proper documentation.

Figure 1-5 *Documentation is an essential part of observation.*



AP Images/Mary Altaffer

Observations in Forensics

- Forensic science
 - Is strictly concerned with uncovering evidence that stands as fact
 - Uses science to help in legal matters, such as crimes

Observations in Forensics

(continued)

- A forensic investigator
 - Is not interested in making the suspect look guilty
 - Is only interested in collecting and examining physical evidence
 - Reports evidence to investigators and courts

What Forensic Scientists Do

- Find, examine, and evaluate evidence from a crime scene
- Apply scientific knowledge to analyze the crime scene
- Be a persuasive communicator who is able to convince a jury that his/her analysis is both reliable and accurate

Summary

- Our ability to observe is affected by our environment and the natural filters of sensory information in our brains.
- The observations of witnesses to crimes can be faulty, but in some cases can be precise.
- The Innocence Project has found that up to 87 percent of their wrongful conviction cases resulted from flawed eyewitness testimony.

Summary (continued)

- Police officers and crime-scene investigators are trained in good observation practices.
- Forensic scientists find, examine, photograph, document, and evaluate evidence from a crime scene and provide expert testimony to courts.