

COURSE: Forensic Science
Grade Level: 9 - 12

MAIN/ GENERAL TOPIC	SUB-TOPIC:	ESSENTIAL QUESTIONS:	WHAT THE STUDENTS WILL KNOW:	WHAT THE STUDENT WILL BE ABLE TO DO:	Assessments:	WHEN STUDENT DOES IT:
Introduction to Forensics	Forensic Science	What is Forensic Science? Who were the major contributors to its development?		Define Forensic Science. Create a timeline of Forensic Scientists major contributions.	Timeline	Sept
	Crime Laboratory	What types of jobs exist within a crime laboratory?		Give examples of typical crime laboratories. Describe services of a typical crime laboratory at national, state, and local level	Worksheet relating crime laboratories to the jobs they do	Sept
	Locard's Exchange Principle	What is Locard's Exchange Principle? How can trace evidence be used track one's movements?		Collect trace evidence using proper forensic techniques. Examine fibers using a microscope. Group similar hairs and fibers together.	Lab1: Locard's Exchange Principle in Action	Sept
The Crime Scene	Securing and Recording the Crime Scene	What is physical evidence? What are the responsibilities of the first police officer that arrives at a crime scene? What steps are taken to thoroughly record a crime scene?	Explain the reasons for isolating and protecting a crime scene from outside contamination. Explain the importance of the "chain of evidence" Explain the steps for thoroughly recording the crime scene Describe the proper procedures for conducting a systematic search of a crime scene for physical evidence	Describe the types of physical evidence. Draw and label a crime scene.	Lab3: Crime Scene Sketching and Digital Photography Completed Crime Scene Sketch and Evidence Log	Sept
	The Murder Scene	What is an autopsy and when is it performed? How does a FS estimate time of death?		Describe what happens to a body during rigor mortis, livor mortis, and algor mortis. Describe the role of a forensic anthropologist and forensic entomologist	Lab2: Crime Scene Investigation: A Case of Deductive Reasoning	Sept
Physical Evidence	Examination an Value of Physical Evidence	What is the difference between individual and class evidence?	Describe the different types of evidence. Explain how evidence is deposited. Explain why certain evidence may be more likely to be found than others. Explain the different values of certain types of evidence to court proceedings.	Explain the difference between identification and comparison of physical evidence. Define individual and class characteristics and give examples of physical evidence possessing these characteristics. Discuss the value of class evidence to a criminal investigation.	Wayne Willimas Case Study Create a list of evidence and match it to individual or class evidence	Sept

	Forensic Databases	How is a physical evidence database used by FS?		List the types of computer databases related to physical evidence. Explain the purpose physical evidence plays in reconstructing events surrounding a crime.	Lab17: Forensic Anthropology	Sept
Fingerprints	Classification of Fingerprints	Which individuals have made significant contributions to development of fingerprint technology? Why is a fingerprint a permanent part of human anatomy? What patterns are found in a fingerprint?	Identify the basic types of fingerprint classification. Describe the reasons and importance of fingerprint databases.	Define ridge characteristics. List the 3 major fingerprint classes and there respective subclasses. Make a set of your prints and classify them Comparing fingerprints found at the crime scene with known samples.	Make a set of standard fingerprints	Oct
	Detection of Prints	What types of prints can be observed? What techniques can be used to observe latent fingerprints?	Describe the types of fingerprints found. Describe the methods of retrieving latent fingerprints.	Distinguish between visible, plastic, and latent fingerprints. Process latent prints on a variety of surfaces using different methods.	Lab5: Fingerprinting	Oct
Ballistics and other Tool Marks			Identify the four basic types of guns. Describe the types and uses of different bullets. Describe the use of serial numbers for guns and bullets. Describe how powder burns are used to gauge the distance of the shooter to the victim.	Compare the tool marks on bullets and casings. Reconstruct bullet trajectories (using simulated bullet holes) Gauge distance of shooter from powder burns (using case studies)	Lab14: Tool Mark Analysis	Nov
Blood			Describe the various components of blood and the evidence each component contains. Describe the nature of blood type and its relative importance as evidence. Describe different bloodstain patterns based on source, direction, and angle of trajectory. Explain the method of chemically isolating old, invisible bloodstains.	Identify each component of blood (using prepared microscope slides) Determine blood type (using simulated blood) Determine the direction and trajectory of blood stains (using red paint) Process old blood stains (using non human blood sources) with luminol		Nov
Trace Evidence			Describe parts of a hair. Explain the lack of evidentiary value in hair comparisons. Describe the basic types of fibers in use today. Explain "energy of deformation" Describe the types of tool marks.	Use microscopes to compare hair, fiber, and tool mark evidence.		Dec

DNA			Describe the nature of introns and exons in the human genome. Explain the importance of various DNA markers to criminal investigations. Describe the methods of DNA collection, amplification and analysis.	Evaluate the use of various DNA markers. Collect a DNA sample. Compare and analyze DNA samples using gel electrophoresis.		Dec
Forensic Anthropology			Identify the parts of a skeleton. Explain how age, race, and gender may be determined, and the limits of such determination. Explain the relationship of dental records to both the identification of remains and bite mark analysis.	Determine the age, race and gender of skeletal remains (using skeletal models). Match bite marks in clay to casts of human teeth (using dental casts).		Jan
Careers			Describe possible careers available to students of forensics. List schools specializing in forensics. Describe other areas of forensics.	Evaluate potential career paths based on interest and amount of schooling required.		Jan