**FORENSICS UNITS**

**Unit 1: Lab Safety, Scientific Method (1 Week)**

 \* Labs are an integral part of any Forensic class. Safety and use of lab materials should be taught and reinforced during every lab all school year. \*Solving a crime utilizes the steps of the scientific method so a review of the method is important. A review of both topics covers several key TEKS for all science courses.

**Unit 2: Intro to Forensics/Forensic Careers (1 ½ Weeks)**

 \*The history of Forensics shows how the science has evolved along with recent scientific developments and new technology. \* In the introduction students gain a preliminary understanding of what this science entails and how different crime units work together. \*Possible Forensic degree plans, universities, and career paths will also be explored.

**Unit 3:** **Basics of Law (1 Week)**

\*Forensics, court systems, and the law are all intertwined. Students must be informed about an individual’s rights under the law and how the court system works under the law. \*Also, differentiating the importance of varying types of evidence is the basis to understanding its presentation in court. All of the above knowledge is crucial in the collection, analysis, and presentation of evidence.

**Unit 4: Evidence & Crime Scene Analysis (1 ½ Weeks)**

\*The “big” picture of the total crime scene is the best place to start the course once the introduction is completed.\* Securing and searching a crime scene are the first steps in any case, so proper technique is important. \*Recording the crime scene and sketching it accurately are fundamental; so various sketching techniques are explored. \*Recognizing, handling, and packaging all types of evidence from the crime scene are also fundamental to any court case.

**Unit 5: Hair & Fiber Analysis (3 Weeks)**

Some students find the analysis of these 2 types of trace evidence monotonous. \*However, several key Forensic TEKS are covered outside of just the hair and fiber TEKS: use of various microscopes, refractive index, and continuous light emission analysis (diffraction) are explored. \*Hair is a great review of several body systems, both units utilize microscopes, physical/chemical changes, and properties of light and thus cover several power TEKS for Biology, Physics, and Chemistry.

**Unit 6: Blood and Blood Typing (4 Weeks)**

Blood analysis is a multi-tiered subject that is greatly anticipated by the students. \*Simulated blood-typing, inheritance patterns, blood detection, blood spatter analysis, and angle trajectories are several topics included here. \*Not only does this unit, cover several required Forensic TEKS, it also reviews genetics, Punnett Squares, chemical reactions, and several physic’s laws/formulas.

**Unit 7: Drugs & Toxicology (3 Weeks)**

The obvious ties to serology make this a logical choice to follow the blood unit. There is a valid emphasis on the ill-effects of alcohol, also drug types, effects and legal penalties.

\*The presumptive tests for drugs and unknowns are a fascinating review of solubility, physical, and chemical properties.

 \*The variety of Forensic TEKS explored include types of chemical reactions, some properties of light emission, light dispersion, light technologies (i.e. spectrophoto-meter), and chromatography as methods of analysis and identifying elements or unknown.

 \*This is an excellent review of chemistry, biology, & physics.

**Fall Finals**

**Unit 8: Prints (4 Weeks):**

\*Fingerprints are an essential type of evidence at most crime scenes.

\* This is an intriguing unit that students find enjoy; with topics that range from fingerprint patterns, types, lifting, and matching to a variety of chemical testing methods that can be used to develop invisible prints for visualization.

\*There is an abundance of labs with result examples can be collected into a portfolio for comparison. This unit meets mostly Forensic TEKS, but some chemistry TEKS also.

\*Lip prints, shoe prints and tire tracks will also be studied in this unit

**Unit 9: Soil & Glass Analysis (3 Weeks)**

The only Forensic TEKS that mentions soil is 7B (process of soil as trace evidence). \*There is a spectrophotometer lab to review the use of light technology. Density and light (IPC TEKs), can be reviewed here.

\*Glass is a fairly common type of evidence that can be used to show order of events, projectile direction, and unknown identification/matching. Light properties, such as refractive index, as forms of Forensic analysis are explored here.

\*This is also an excellent place to include a summative unit on all the uses of light/light technology for forensic analysis. Besides being an essential unit in the Forensic TEKS, many of the lab tests done to analyze glass are a review of the light, wave, and density properties covered in IPC TEKS.

**Unit 10: Ballistics (4 Weeks)**

A topic that most students find very appealing. There are several Forensic TEKS that are covered in this unit, along with discussions of National Databases.

\*Tool-marks and impressions matching and analysis is part of Ballistics.

\* In general, bullet and cartridges have markings that can be individually matched to the gun they were fired from.

\*The process of firing a gun is a chemical reaction and many of the lab tests in this unit are utilizing chemical changes as confirmatory for the presence of various types of evidence (gunpowder, bullet type, etc).

\* Also bullet trajectory can be a chance to re-examine some of Newton’s Laws and physics formulas.

**Unit 11: DNA Fingerprinting (4 Weeks)**

Another unit with several required Forensic TEKS. It’s a terrific re-examination of DNA properties and function (key Biology TEKS) prior to annual, state testing.

\*The DNA unit offers actual experience with DNA extraction and gel electrophoresis, utilizing chemical properties, so some IPC TEKS are included also.

**Unit 12: Human Remains (4 Weeks)**

A great unit that students look forward to all year really energizes the last of the spring semester.

\*Forensic Anthropology. The human skeleton and formation of bone are reinforced during this unit. Gender, ethnicity, age, and individual skeletal characteristics will be examined; as they relate to identification of human remains. Will include forensic odontology—the study of dentition

\*Forensic Pathology: Injuries, death and decomposition will energize the later part of the spring semester. Key topics are homicide roles, crime-scene clues, use of entomology, and cause/time of death. There is a combination of other evidence types that is re-visited during this study of several Forensic TEKS. A few Biology TEKS on body systems and the cell are reviewed in this unit

**Simulated Crime Scene:** A notable end to the school year that can summarize all the collection techniques and possible laboratory test that were studied during the year. (Of course, simulated crime scenes are fun and educational throughout the year).