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| **TEXAS CTE LESSON PLAN**[www.txcte.org](http://www.txcte.org) |
| **Lesson Identification and TEKS Addressed** |
| **Career Cluster** | Law, Public Safety, Corrections & Security |
| **Course Name** | Forensic Science |
| **Lesson/Unit Title** | Legal Systems |
| **TEKS Student Expectations** | **130.339. (c) Knowledge and Skills**(5) The student explores the history, legal aspects, and career options within forensic science(A) The student is expected to distinguish between criminalistics and criminology(B) The student is expected to identify and illustrate roles, functions, and responsibilities of different forensic science disciplines such as serology-DNA, controlled substances, toxicology, trace evidence, firearms, fingerprints, and questioned documents(C) The student is expected to summarize the ethical standards required of a forensic science professional(6) The student recognizes the procedures of evidence collection while maintaining the integrity of a crime scene(D) The student is expected to apply knowledge of the elements of criminal law that guide search and seizure of persons, property, and evidence(G) The student is expected to outline the chain of custody procedure for evidence discovered in a crime scene |
| **Basic Direct Teach Lesson**(Includes Special Education Modifications/Accommodations and one English Language Proficiency Standards (ELPS) Strategy) |
| **Instructional Objectives** | The student will be able to * provide similarities and differences between criminalistics and forensics, and explain the different duties of each forensic unit;
* describe the legal responsibilities of forensic science professionals in and out of the courtroom; and
* recognize the function of evidence and how it is perceived in the courtroom according to the law.
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| **Rationale** | It is crucial that crime scene investigators and forensic scientists understand the official significance of evidence, from collection to the courtroom. Also, forensic science has many different divisions and each specialty has a distinctive role in the legal system. Understanding this is essential for functioning productively and effectively within the system.  |
| **Duration of Lesson** | 4 to 6 hours |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* | See OutlineFor reinforcement, students will look up all key vocabulary terms in their book or on the Internet and draw pictures of the key terms. Use the Individual Work Rubric for assessment. |
| **Materials/Specialized Equipment Needed** | O.J. Simpson: An Example of Problems with Evidence Handout and Key Legal Systems Crossword Puzzle and KeySmash and Grab Questions Handout and KeyAdmission into Evidence Court Cases Research Handout and Key Computers with Internet access |
| **Anticipatory Set**(May include pre-assessment for prior knowledge) | Read and discuss the following article with the class<http://www.innocenceproject.org/understand/Eyewitness-Misidentification.php>.Use the Discussion Rubric for assessment. |
| **Direct Instruction \*** | 1. Our Rights and Their Effect on Forensic Evidence – understanding the rights of United States citizens under the law (Bill of Rights) is vital when collecting, analyzing, and presenting evidence in the legal system
2. Evidence Collection – The Fourth Amendment
3. Right of Search and Seizure Regulated – “The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrants shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.”
4. Unlawful Search and Seizure
5. When the court says an individual’s rights were violated, any evidence derived from the search and seizure will be kept out of the criminal case, if the case is against the person whose rights were violated
6. It is very important that evidence is collected lawfully, without an evasion of privacy or with a search warrant, so it will not be ruled inadmissible in court
7. Searching – Was There an Invasion of Privacy? The court will ask two things (if either of these answers is no, then any evidence collected can be admissible in court)
	1. Did the owner of the home or property that was investigated or searched expect a “degree of privacy”?
	2. Was this expectation of privacy reasonable and legitimate?
8. Search Warrant – a judicial order that authorizes the law enforcement agencies to conduct a search of a location/person and to seize any evidence of a criminal offense. To issue a search warrant police must show the judge that
	1. Probable cause exists that a crime has occurred
	2. Evidence or contraband linked to the crime will probably be found on a certain location on the property or person at issue
9. Search Warrant Not Needed
	1. Consent is given for the search (no warrant is needed, even in the future, once consent is given)
	2. Emergency – someone is in danger, or there might be destruction of evidence
	3. After an arrest – an officer can search the person and immediate surroundings
	4. Plain view – if the police are there legally and evidence is in plain view
	5. Reasonable suspicion – if police believe they will find a weapon or drugs on a person or in a car, they can legally search
10. Regulations for the Prosecution – Fifth Amendment: “No person shall be held to answer for a capital, or otherwise infamous crime, unless on an indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation.”
11. Difficult/Publicized /Capitol Cases
12. In many states, a grand jury (16 – 24 citizens) meets to decide if there is enough evidence before a citizen can even be indicted for a crime
13. The grand jury is an “arm” of the prosecutor office, the defense does not even present at a grand jury
14. Double Jeopardy
15. It is imperative that every bit of evidence be found in the case before it is brought to trial
16. If a person is found innocent of a crime and more evidence is discovered after the trial, the person cannot be put on trial again for that same crime
17. Due Process – everyone is treated the same
18. Plea Bargaining – even with all the hard work and effort put forth by law enforcement officials toward criminal cases, up to 90% of all cases are plea bargained and never go to trial (Deslich, 2006)
19. Trial Policies – Sixth and Seventh Amendment
20. Sixth Amendment – “In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the state and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for his defense.”
21. Speedy Trial
22. Depends on state statute, but generally 90 – 120 days for an imprisoned defendant, unless waived by the individual
23. The following slow the process:
* The defendant is out on bail
* Motions
* Illness
* Lack of attorney(s)
1. The defendant can ask for a speedier trial; for law enforcement this is mixed news.
* Speedy trial rules make it imperative to find all the evidence as soon as possible
* Delays might be beneficial to law enforcement because they lengthen the evidence collection and analysis time
1. Witnesses – any witness for the defense or the prosecution can be subpoenaed to appear in court
2. Informed of Charge
3. Once arrested, a defendant has 72 hours to be arraigned, told what he is charged with, and offer his plea
4. The more evidence collected before the arrest the better it is known What to charge the defendant with the extent of the charges has implications regarding the amount of the bail
5. Defense Council
6. A defendant has the right to an attorney
* If they can’t afford one, the court must provide one
* A defense attorney must know every bit of the prosecutor’s evidence in the case to prepare
* The defense attorney’s job is to get the defendant freed—all evidence and evidence procedures can be questioned; this includes collection, handling, delivery, analysis, testimony, and documentation
1. Seventh Amendment – “In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise reexamined in any court of the United States, then according to the rules of the common law.”
2. Impartial Trial by Jury
3. Jury of the individual’s peers is the standard
4. Some evidence and its analysis are very intricate, detailed, and difficult to understand outside of the scientific community; this can help or hurt the defendant
5. United States Court – all courts used for trials should be controlled by the United States government; furthermore, all verdicts handed down by these courts are final (unless appealed to a higher court)
6. The Evidence in Court – how evidence is received in a court of law is extremely important to a crime scene professional. Because of the Constitution’s view of “innocent until proven guilty” and the rights of the accused, it is crucial that those in law enforcement understand the types of evidence, how it is perceived in court, how to testify to its significance, and the importance of proper evidence collection and handling
7. Power of the Evidence in Court
8. Probative Value
9. Higher value if the evidence can prove something in court
10. The lower the probability of an event, the higher the probative value
11. Probability – the frequency of the occurrence of an event a) Defines the odds that a certain event will occur (or the matching of a certain pieces of evidence)
12. Normally found by multiplying the odds
13. Example – if a coin is flipped 100 times and comes up heads 50 times, the probability of coming up heads is 50 out of 100, or 5 out of 10
14. Product Rule – calculate the overall frequency of occurrence of in a population
15. Example – the OJ Simpson case: Blood factors from a crime scene that match OJ’s blood (Bertino, 2009)

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| Blood Factors | Frequency in | Decimal of the |
|  | Population (%) | Frequency |
| A | 26% | .26 |
| EsD | 85% | .85 |
| PGM 2+2- | 2% | .02 |

1. Product Rule – 26 x .85 x .02 = .0044 or 0.44%, or less than 1 out of 200 people would be expected to have this combination of blood factors
2. Types of Evidence in Court
3. Direct Evidence – evidence that establishes a fact
4. Eyewitness testimony or victim’s testimony
5. Confessions
6. Physical evidence found on a person
7. Audio or visual recording of the act or crime
8. Indirect Evidence
9. Circumstantial evidence
* Requires that a judge and/or jury make inferences about what transpired at the scene of a crime
* Not definitive proof
* Physical evidence is nearly always circumstantial, so evidence analyzed forensically is mostly circumstantial evidence
* Inference example – fingerprints or hairs found at the scene are consistent with that of a perpetrator; jurors may infer that the print or hair belongs to the defendant after this evidence is presented, linking the defendant to the scene
1. Comparison between the Influence of Direct and Indirect Evidence
2. Circumstantial evidence is more objective, while direct evidence is subjective
3. In general, direct evidence is not considered to be as reliable as circumstantial evidence
* Eyewitnesses can be deficient when identifying perpetrators or remembering certain events
* Flawed questioning techniques can lead to erroneous testimony and confessions
* The age of the eyewitness and the passing of time since the event can also lead to faulty testimony
1. Court research comparing the impact of the type of evidence differs in its results
* Some research says direct (eyewitness) evidence has a stronger impact on the jury
* At other times, physical evidence was considered more valid by jurors
* Some studies suggest that having both types of evidence is no more compelling than having strong evidence of only one type
1. The forensic scientist should
* Always be aware of the persuasive nature of eyewitness testimony
* In no way allow that to interfere with the scientific method when
* Analyze physical evidence
* Develop a hypothesis when investigating a crime
* The direct evidence of a police officer’s testimony (concerning the source of evidence, documentation, and chain of custody) corroborates and strengthens the probative value of physical evidence
1. Categories of Physical Evidence
2. Individual Evidence – evidence that can be linked to a unique, specific source with a very high degree of probability
3. Examples
* Matching ridge characteristics of fingerprints
* Matching striations of two different bullets from the same gun
* The irregular edges of a broken object (paper, glass, etc.) that fit together like a jigsaw puzzle (this type of evidence is not found very often)
1. Class Evidence – evidence that can only be associated with a group and never a single source
2. The way to increase the probative value of class evidence is to find as many different types of class evidence as possible to link the suspect to the crime
3. Evidence Admissibility in a Court of Law – not only will the court compare the Bill of Rights to how evidence was collected, but there are court precedents that determine the admissibility of scientific results and how those results are explained in court
4. Frye v. United States, 1923 – The Frye Standard: the questioned scientific procedure or principles must be “generally accepted” by a majority of the scientific community
5. Daughbert v. Merrell Dow Pharmaceuticals, 1993
6. Verdict replaced the Frye Standard
7. Areas of inquiry by the judge acting as the gatekeeper
* Can the scientific technique or theory be tested?
* Has the technique or theory been subjected to peer review?
* What is the technique’s potential rate of error?
* Are there standards to control the technique’s operation, and are these maintained?
* Has the technique or theory attracted widespread acceptance within scientific community?
1. Federal Rules of Evidence (Number 702) Expert Testimony
2. Expert Testimony – hearsay from a witness is normally not allowed in court, except in the case of an expert witness
3. Expert Witness – a witness “qualified as an expert by knowledge, skill, experience, training, or education” (Deslich, 2006) may offer expert testimony on a scientific matter if
* The testimony is based upon sufficient facts
* The testimony is the product of reliable principles and methods
* The witness has applied the principles and methods reliably to the facts of the case
1. Court Significance of Procedures in Evidence Collection and Analysis – every step of the process for collecting, handling, analyzing, transporting, and storing evidence is scrutinized in a court of law. So, there are guidelines that must be followed for forensic evidence and its results to be admissible in court
2. A systemic search for all evidence must be conducted
3. All evidence must be collected, including large items and trace evidence that must be vacuumed
4. Comparison-type evidence should be collected when possible
5. Reference Samples – should be collected for comparison

**Examples*** The removal of a paint chip from a suspect’s vehicle to compare to the paint from the scene of a hit-and-run incident
* Hair and blood-stained evidence from a crime scene should be accompanied by whole blood and hair samples from the victim, all possible suspects, all family members (and pets), and crime scene investigators

These reference samples are then available for comparison, elimination, and matching to those unknown specimens collected at the crime scene1. Substrate Controls – materials collected close to areas where evidence was found to ensure that the surface close to the evidence does not react or interfere with laboratory testing measures and show a different result than the actual evidence collected
2. Proper packaging and separation of evidence is crucial
3. Cross-contamination (or contact) with other persons or evidence is to be avoided at all cost
4. Proper tools for collection and storage should always be used (envelopes, vials, bags, etc.)
5. Always follow strict packaging guidelines for all evidence, and never package any two pieces of evidence together
6. Decontamination of personnel between crime scenes is important
7. Chain of Custody – the witnessed, written record of all individuals who had the evidence in their possession from the crime scene to the courtroom; and when, where, and for what purpose this transfer of evidence occurred
8. The item of evidence itself should be identified; the location, time, and person collecting should also be recorded
9. The evidence container should also be marked for identification, showing the collector’s initials, the location of evidence, and the date the collector received it
10. If the evidence is turned over to another individual for any reason (care or delivery), this transfer must be recorded in the notes and/or forms
11. Any samples of the evidence taken for testing or any changes in the evidence should be documented immediately
12. Every individual who possesses the evidence must maintain a written record of its acquisition/disposition and may be called to testify in court; this includes individuals from the collection, to delivery, to the laboratory analysis, and then into the courtroom with the prosecuting attorney
13. To avoid confusion, the number of individuals involved in the chain of custody, should be kept to a minimum
14. The chain of custody record is often kept as a form on the container or envelope of the evidence

Failure to substantiate the evidence’s chain of custody may lead to serious questions regarding the authenticity and integrity of the evidence. |
| **Guided Practice \*** | * Evidence Activity. Use the outline for direct instruction. Create questions that may be used to guide a class discussion or as a quiz. Use the Evidence: Individual or Class Discussion Activity Key and/or the Discussion Rubric for assessment.
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| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | * O.J. Simpson Case Problems with Evidence. Have students analyze what went wrong during the O.J. Case. Use the O.J. Simpson: An Example of Problems with Evidence handout for the activity and the O.J. Simpson: An Example of Problems with Evidence Key for assessment. The Discussion Rubric and the Debate Rubric may also be used.
* Smash & Grab Activity. Do an Internet search for a video using the following: Surveillance Video of Smash-And-Grab Robbery in LA. (*Notes:* there are three parts on this video; only use the first one. Do not give students any idea of what they are about to watch and do not emphasize the need to remember details.) Have all the students watch the first part of the video (approximately 30 seconds) and then distribute the Smash and Grab Questions handout to the students. Have the students complete as many of the questions as they can. It will probably be necessary to watch the first part of the video one or two more times before the students can answer all the questions. Remind the students that in actual law enforcement situations there is no replay of the event. After the students complete the questions, have them reflect on the emotions they felt during the observation of the event and the questioning period. Ask them to explore how these emotions might interfere with the recall of the facts of the event, for both the authentic questioning process in police headquarters and the courtroom. Use the Smash and Grab Questions Key as a resource for the activity. Use the Individual Work Rubric and/or the Writing Rubric for assessment.
* Legal Systems Crossword Puzzle. Have students complete the Legal Systems Crossword Puzzle. Use the Legal Systems Crossword Puzzle Key for assessment.
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| **Lesson Closure** |  |
| **Summative/End of Lesson Assessment \***  | * Legal Systems Exam and Key
* Evidence: Individual or Class Discussion Activity Key
* O.J. Simpson: An Example of Problems with Evidence Key
* Legal Systems Crossword Puzzle Key
* Smash and Grab Questions Key
* Admission into Evidence Court Cases Research Key
* Debate Rubric
* Discussion Rubric
* Individual Work Rubric
* Research Rubric
* Writing Rubric
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| **References/Resources/****Teacher Preparation** | * + 1. Saferstein, Richard. *Forensic Science: An Introduction.* New Jersey: Pearson Prentice Hall, 2008.
		2. Bertino, Anthony J. *Forensic Science: Fundamentals & Investigations.* Mason,
			- OH: South-Western Cengage Learning, 2009.
		3. Deslich, Barbara; Funkhouse, John. *Forensic Science for High School* Dubuque, Iowa: Kendall/Hunt Publishing Company, 2006.
		4. Linder, Douglas. “Famous American Trials: The O.J. Simpson Trial.” 2006. University of Missouri-Kansas City School of Law. 31 July 2009. <http://www.law.umkc.edu/faculty/projects/ftrials/Simpson/simpson.htm>
		5. “The State of California vs. [Orenthal](http://en.wikipedia.org/wiki/O._J._Simpson) James Simpson” [ transcript of testimony
			- of William Bodziak]. 19 June 1995. University of Missouri-Kansas City
			- School of Law. 31 July 2009.
			- <http://www.law.umkc.edu/faculty/projects/ftrials/Simpson/Bodziak.html>
		6. “The State of California vs. Orenthal James Simpson” [transcript of testimony
			- of Henry Lee]. 19 June 1995. University of Missouri-Kansas City School
			- of Law. 31 July 2009.
			- <http://www.law.umkc.edu/faculty/projects/ftrials/Simpson/leetest.html>
		7. Thompson, William. “Proving the Case: The Science of [DNA Evidence](http://en.wikipedia.org/wiki/DNA_profiling): DNA
			- Evidence in the OJ Simpson Trial.” 30 December 2008. Ramapo College
			- of New Jersey. 31 July 2009,
			- <http://phobos.ramapo.edu/~jweiss/laws131/unit3/simpson.htm>
			- <http://www.pbs.org/wgbh/pages/frontline/oj/themes/prosecutionhtml>
			- <http://www.crimemuseum.org/oj_acquittal_trial_suit>
		8. Do an Internet search for a video using the following: Surveillance Video of Smash-and-Grab Robbery in LA.
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| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** |  |
| **Recommended Strategies** |
| **Reading Strategies** |  |
| **Quotes** |  |
| **Multimedia/Visual Strategy****Presentation Slides + One Additional Technology Connection** |  |
| **Graphic Organizers/Handout** |  |
| **Writing Strategies****Journal Entries + 1 Additional Writing Strategy** |  |
| **Communication****90 Second Speech Topics** |  |
| **Other Essential Lesson Components** |
| **Enrichment Activity**(e.g., homework assignment) | For enrichment, students will investigate five landmark court cases which have improved the admissibility of scientific evidence in court. Students will complete the Admission into Evidence Court Cases Research Handout. Use the Admission into Evidence Court Cases Research Key and the Research Rubric for assessment. |
| **Family/Community Connection** |  |
| **CTSO connection(s)** | SkillsUSA |
| **Service Learning Projects** |  |
| **Lesson Notes** |  |

1. Visit the Texas College and Career Readiness Standards at <http://www.thecb.state.tx.us/collegereadiness/CRS.pdf>, Texas Higher Education Coordinating Board (THECB), 2009. [↑](#footnote-ref-1)