|  |
| --- |
| **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** | Taking Fingerprints - Tenprint |
| **TEKS Student Expectations** | **130.339. (c) Knowledge and Skills**(2) The student, for at least 40 of instructional time, conducts laboratory and/or field investigations using safe, environmentally appropriate, and ethical practices. (A) The student is expected to demonstrate safe practices during laboratory and field investigations(B) The student is expected to demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials(3) The student uses scientific methods and equipment during laboratory and field investigations.(F) The student is expected to collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettes, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures(G) The student is expected to analyze, evaluate, make inferences, and predict trends from data and(H) The student is expected to communicate valid conclusions supported by the data through methods such as investigative reports, lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports. |
| **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:* Explain the factors affecting fingerprints.
* Obtain quality fingerprint impressions of another person.
* Compare the three major fingerprint patterns of arches, loops, and
* whorls, and their respective subclasses.
 |
| **Rationale** | Forensic Fingerprint Examiners are sometimes expected to obtain known fingerprints of suspects and/or victims for fingerprint comparison. |
| **Duration of Lesson** | 2 to 6 hours |
| **Word Wall/Key Vocabulary***(ELPS c1a,c,f; c2b; c3a,b,d; c4c; c5b) PDAS II(5)* |  |
| **Materials/Specialized Equipment Needed** | **Materials*** Tenprint cards
* Fingerprint ink pad (or ink and a slab)
* Hand soap
* Computer with Internet access
 |
| **Anticipatory Set**(May include pre-assessment for prior knowledge) | Read and discuss the following case study: John Dillinger: Fingerprint Obliteration, <http://www.crimemuseum.org/blog/john-dillinger-fingerprint-obliteration/>. Use the Discussion Rubric for assessment. |
| **Direct Instruction \*** | 1. Review: Purposes of prints
	1. Solving crimes
	2. Identity confirmation (passport, cashing checks, etc.)
	3. Determining the identity of the deceased
	4. Entrance control for buildings and rooms
	5. Clearance for employment
2. Factors Affecting Fingerprints
	1. Negative Factors
		1. Allowing the subject to “print themselves”
		2. Excessive pressure on the finger leaves black stains on the paper
		3. Not enough pressure results in hard-to-read prints
		4. Perspiration or wet fingers leave spots on the print
		5. Sickness and disease
	2. Positive factors
		1. Confidence during the social interactions
		2. Improvement with practice
3. Required Supplies
	1. Ink pad, or ink and roller
	2. Tenprint card (purchased or self-made)
	3. Area for printing, or stand (purchased)
	4. Hand soap and clean-up supplies
4. How to Take Prints
	1. Step 1: Communicate
		1. Begin by telling the subject that you are going to take their prints, and to relax their hand and let you do all the work.
		2. When they try to do it with you, stop, advise them again, and ask them to let you control their hands. Stop and reiterate this as necessary.
	2. Step 2: Rolled Prints
		1. If you are using an ink slab and roller, roll just enough ink on the slab to leave a fine, almost transparent layer.
		2. Roll each finger from the radial bone side (thumb) to the ulnar bone side (little finger) on the ink pad or ink slab.
		3. Roll fingers, one by one, onto the Tenprint card, without pressing down. Your rolled prints should be wide and not resemble typical finger sizes.
	3. Step 3: Plain Impressions
		1. For the plain impressions, ink them from the top down until the fingers lay flat.
		2. Do the left fingers and then the right fingers.
		3. Ink the thumbs.
		4. Clean up.
	4. Step 4: Clean-Up
		1. Soap MUST be rubbed in well before applying water.
		2. The Tenprint card MUST be moved away to prevent damage.
5. Special Situations
	1. Amputations
	2. Bandaged Fingers or Hands
	3. Scars
	4. Deformities
	5. Worn Fingerprints
	6. Extra Fingers
	7. Webbed Fingers

*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*none |
| **Guided Practice \*** | Discuss, Prepare, and Classify FingerprintsReview as a class the information and the steps described in “Taking Legible Fingerprints” on the FBI website. http://www.fbi.gov/hq/cjisd/takingfps.htmlFollowing the steps on the FBI website take a quality Tenprint of yourself and classify each fingerprint on the Tenprint card. Next, prepare a quality Tenprint of another person and classify each fingerprint on the Tenprint card.As a group exercise, ask the students to divide themselves into pattern groups. Do it by the pattern on one finger or their thumbs. Have them estimate how many have each pattern and critique each other. Use the Taking Fingerprints Tenprint Checklist for assessment.*Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*none |
| **Independent Practice/Laboratory Experience/Differentiated Activities \*** | *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*none |
| **Lesson Closure** |  |
| **Summative/End of Lesson Assessment \***  | *Individualized Education Plan (IEP) for all special education students must be followed. Examples of accommodations may include, but are not limited to:*none |
| **References/Resources/****Teacher Preparation** | Federal Bureau of Investigation: <http://www.fbi.gov/hq/cjisd/takingfps.html>John Dillinger: Fingerprint Obliteration <http://www.crimemuseum.org/blog/john-dillinger-fingerprint-obliteration/> |
| **Additional Required Components** |
| **English Language Proficiency Standards (ELPS) Strategies** |  |
| **College and Career Readiness Connection[[1]](#footnote-1)** | I. Key Cognitive SkillsC. Problem solving* 1. Analyze a situation to identify a problem to be solved.
	2. Develop and apply multiple strategies to solve a problem.
1. Academic Behaviors
	1. Strive for accuracy and precision.
	2. Persevere to complete and master tasks.
2. Work habits
	1. Work independently.
	2. Work collaboratively.
 |
| **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 reinforcement, students will identify different fingerprint patterns and subgroups. Use the Individual Work Rubric for assessment.For enrichment, students will identify numerous points of identification present on each fingerprint on the Tenprint card. Use the Individual Work 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)